

Engineer	Jerry Williams, P.E.
Email Address	jerry.williams@wv.gov
Company Name	Blue Racer Midstream, LLC
Company ID	103-00118
Facility Name	Marcellus Field Station No. 1
Permit Number	R13-3336
County	Wetzel
Newspaper	<i>The Wetzel Chronicle</i>
Company Email and "Attention To:"	Daniel Wentworth daniel@caimanenergy.com
Environmental Contact Email Address	Sean Wilson swilson@caimanenergy.com Jill Thornberry JThornberry@blueracermidstream.com
Regional Office (if applicable)	NA
New or Modified Source?	new
Construction, Modification, or Relocation?	construction
Type of Facility	natural gas compressor station
"Located" or "To Be Located"?	to be located
Place where I can find electronic versions of your notice, engineering evaluation, and draft permit	Q:\AIR_QUALITY\J_Willi\Permit Applications Under Review\Blue Racer Midstream, LLC\R13-3336 Marcellus Field Station No. 1

*Will publish
11/16 pm
via email*

*publish Wed Nov 23 2016
30 days Fri Dec 23 2016*

*emails
prepped*

INTERNAL PERMITTING DOCUMENT TRACKING MANIFEST

Company Name Blue Racer Midstream, LLC






Permitting Action Number R13-3336 Total Days 79 DAQ Days 44

Permitting Action:

- | | | |
|---|---|--------------------------------------|
| <input type="radio"/> Permit Determination | <input type="radio"/> Temporary | <input type="radio"/> Modification |
| <input type="radio"/> General Permit | <input type="radio"/> Relocation | <input type="radio"/> PSD (Rule 14) |
| <input type="radio"/> Administrative Update | <input checked="" type="radio"/> Construction | <input type="radio"/> NNSR (Rule 19) |

Documents Attached:

- | | |
|--|--|
| <input checked="" type="radio"/> Engineering Evaluation/Memo | <input type="radio"/> Completed Database Sheet |
| <input checked="" type="radio"/> Draft Permit | <input type="radio"/> Withdrawal |
| <input checked="" type="radio"/> Notice | <input type="radio"/> Letter |
| <input type="radio"/> Denial | <input type="radio"/> Other (specify) _____ |
| <input type="radio"/> Final Permit/General Permit Registration | _____ |

Date	From	To	Action Requested
11/4/2016	Jerry 	Bev	Please review and approve to go to notice.
11/14	Bev 	Jerry 	Go to Notice
11/14	Jerry 	Jerry 	Approved for Notice

NOTE: Retain a copy of this manifest for your records when transmitting your document(s).



Permit / Application Information Sheet

Division of Environmental Protection

West Virginia Office of Air Quality

Company:	Blue Racer Midstream, LLC	Facility:	Field Station 1
Region:	2	Plant ID:	103-00118
Application #:	13-3336		
Engineer:	Williams, Jerry		Category:
Physical Address:	Highway 52 Reader WV		SIC: [4922] ELECTRIC, GAS AND SANITARY SERVICES - NATURAL GAS TRANSMISSION NAICS: [486210] Pipeline Transportation of Natural Gas
County:	Wetzel		
Other Parties:	DIRECTOR - Wilson, Sean 214-580-7340 VICE PRES - Wentworth, Daniel 214-580-3711		

Information Needed for Database and AIRS

1. Need valid physical West Virginia address with zip
2. Air Program
3. Inspection result
4. Pollutant and class

Regulated Pollutants

Summary from this Permit 13-3336

Air Programs	Applicable Regulations
NSPS	02 06 10 13 16 22 60 JJJJ 63 HH
SIP	63 ZZZZ
Fee Program	Application Type
8D	CONSTRUCTION

Notes from Database

Permit MM Note: Natural gas compressor station.

Activity Dates

APPLICATION RECIEVED	08/17/2016
APPLICATION FEE PAID	08/18/2016
ASSIGNED DATE	08/18/2016
APPLICANT PUBLISHED LEGAL AD	08/31/2016
APPLICATION INCOMPLETE	09/06/2016
ADDITIONAL INFO RECEIVED	09/13/2016
ADDITIONAL INFO RECEIVED	09/20/2016
APPLICATION DEEMED COMPLETE	09/21/2016
ADDITIONAL INFO RECEIVED	09/23/2016
ADDITIONAL INFO RECEIVED	10/17/2016
ADDITIONAL INFO REQUESTED	10/19/2016
ADDITIONAL INFO RECEIVED	10/26/2016

NON-CONFIDENTIAL

Please note, this information sheet is not a substitute for file research and is limited to data entered into the AIRTRAX database.

Company ID: 103-00118
 Company: Blue Racer Midstream, LLC
 Printed: 11/04/2016
 Engineer: Williams, Jerry

Engineer	Jerry Williams, P.E.
Email Address	jerry.williams@wv.gov
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AIR QUALITY PERMIT NOTICE

Notice of Intent to Approve

On August 17, 2016, Blue Racer Midstream, LLC applied to the WV Department of Environmental Protection, Division of Air Quality (DAQ) for a permit to construct a natural gas compressor station located off of Highway 52, Reader, Wetzel County, WV at latitude 39.57547 and longitude -80.71859. A preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed facility. The DAQ is providing notice to the public of its preliminary determination to issue the permit as R13-3336.

The following potential emissions will be authorized by this permit action: Oxides of Nitrogen, 32.94 tons per year (TPY); Carbon Monoxide, 84.15 TPY; Volatile Organic Compounds, 58.10 TPY; Particulate Matter less than 10 microns, 2.39 TPY; Sulfur Dioxide, 0.17 TPY; Total Hazardous Air Pollutants, 6.39 TPY; Formaldehyde, 2.58 TPY; Carbon Dioxide Equivalents, 28,036 TPY.

Written comments or requests for a public meeting must be received by the DAQ before 5:00 p.m. on (Day of Week, Month, Day, Year). A public meeting may be held if the Director of the DAQ determines that significant public interest has been expressed, in writing, or when the Director deems it appropriate.

The purpose of the DAQ's permitting process is to make a preliminary determination if the proposed construction will meet all state and federal air quality requirements. The purpose of the public review process is to accept public comments on air quality issues relevant to this determination. Only written comments received at the address noted below within the specified time frame, or comments presented orally at a scheduled public meeting, will be considered prior to final action on the permit. All such comments will become part of the public record.

Jerry Williams, P.E.
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Telephone: 304/926-0499, ext. 1223
FAX: 304/926-0478

Additional information, including copies of the draft permit, application and all other supporting materials relevant to the permit decision may be obtained by contacting the engineer listed above. The draft permit and engineering evaluation can be downloaded at:

www.dep.wv.gov/daq/Pages/NSRPermitsforReview.aspx



west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-3336
Plant ID No.: 103-00118
Applicant: Blue Racer Midstream, LLC (BRM)
Facility Name: Marcellus Field Station No. 1 (Station)
Location: Reader, Wetzel County
NAICS Code: 211111 (Natural Gas Production)
Application Type: Construction
Received Date: August 17, 2016
Engineer Assigned: Jerry Williams, P.E.
Fee Amount: \$4,500.00
Date Received: August 17, 2016
Complete Date: September 21, 2016
Due Date: December 20, 2016
Applicant Ad Date: August 31, 2016
Newspaper: *The Wetzel Chronicle*
UTM's: Easting: 524.1 km Northing: 4,380.7 km Zone: 17
Latitude: 39.57547
Longitude: -80.71859
Description: Natural gas compressor station.

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-3336:

The Station will consist of the following equipment:

- Three (3) Caterpillar G3606 compressor engines and associated blowdowns and starter vents
- One (1) glycol dehydration unit (maximum capacity of 91 million standard cubic feet per day MMSCFD) and associated glycol reboiler
- One (1) underground produced water tank and associated loading
- One (1) pressurized bullet tank controlled by a vapor recovery unit (VRU) and associated loading

Promoting a healthy environment.

- One (1) flare
- Fugitive components

The proposed Station is located 0.4 miles west of the Mason Hill facility recently acquired by BRM. This facility is authorized under Permit No. R13-3287. The Mason Hill facility will be shut down upon commencement of operation of the Station.

The Station receives produced natural gas from natural gas wells located in Wetzel County and adjacent counties through a network of gathering pipelines. The inlet natural gas enters the Station and is routed to a three-phase inlet separator where produced water is removed and routed to an underground storage tank (Emission Unit ID 5S) and condensate is stored in a pressurized bullet tank (Emission Unit ID 6S). The underground produced water tank emissions are controlled by a flare (Emission Unit ID 11S) Bullet tank emissions are controlled by a vapor recovery unit (VRU). When the VRU is offline for maintenance, condensate vapors are routed to the flare (Emission Unit ID 11S), with 98% destruction efficiency. The produced water and condensate collected in the tanks are periodically transported off-site via trucks (Emission Unit IDs 7S and 8S).

Natural gas is compressed by three (3) compressor engines (Emission Unit IDs 1S, 2S, and 3S) and routed to the dehydration unit contactor (Emission Unit ID 10S) where water is removed from the gas by bringing glycol into contact with the gas. The water-saturated glycol (i.e. rich glycol) is routed to a flash tank where flash-off vapors are routed to the flare. The rich glycol is then routed to the associated glycol reboiler (Emission Unit ID 9S) where it is heated and water and other constituents are removed. The resulting lean glycol is circulated back into the dehydration process. Emissions resulting from the glycol regeneration process are routed to a BTEX sump where liquids fall out and are routed to a storage tank (Emission Unit ID 5S). The BTEX sump is being modeled similar to a condenser in GlyCalc, such that the ground temperature of 70° F condenses water vapor and heavier components. The vapors from the BTEX sump are then routed to the flare. The dry gas resulting from the dehydration process is routed to the transmission pipeline for offsite transportation.

The Station also includes VOC emissions from piping and fugitive components (Emission Unit ID 4S), compressor blowdowns (Emission Unit ID 12S), engine starter vents (Emission Unit ID 13S), pigging operations (Emission Unit ID 14S), and unpaved road dust emissions (Emission Unit ID 15S).

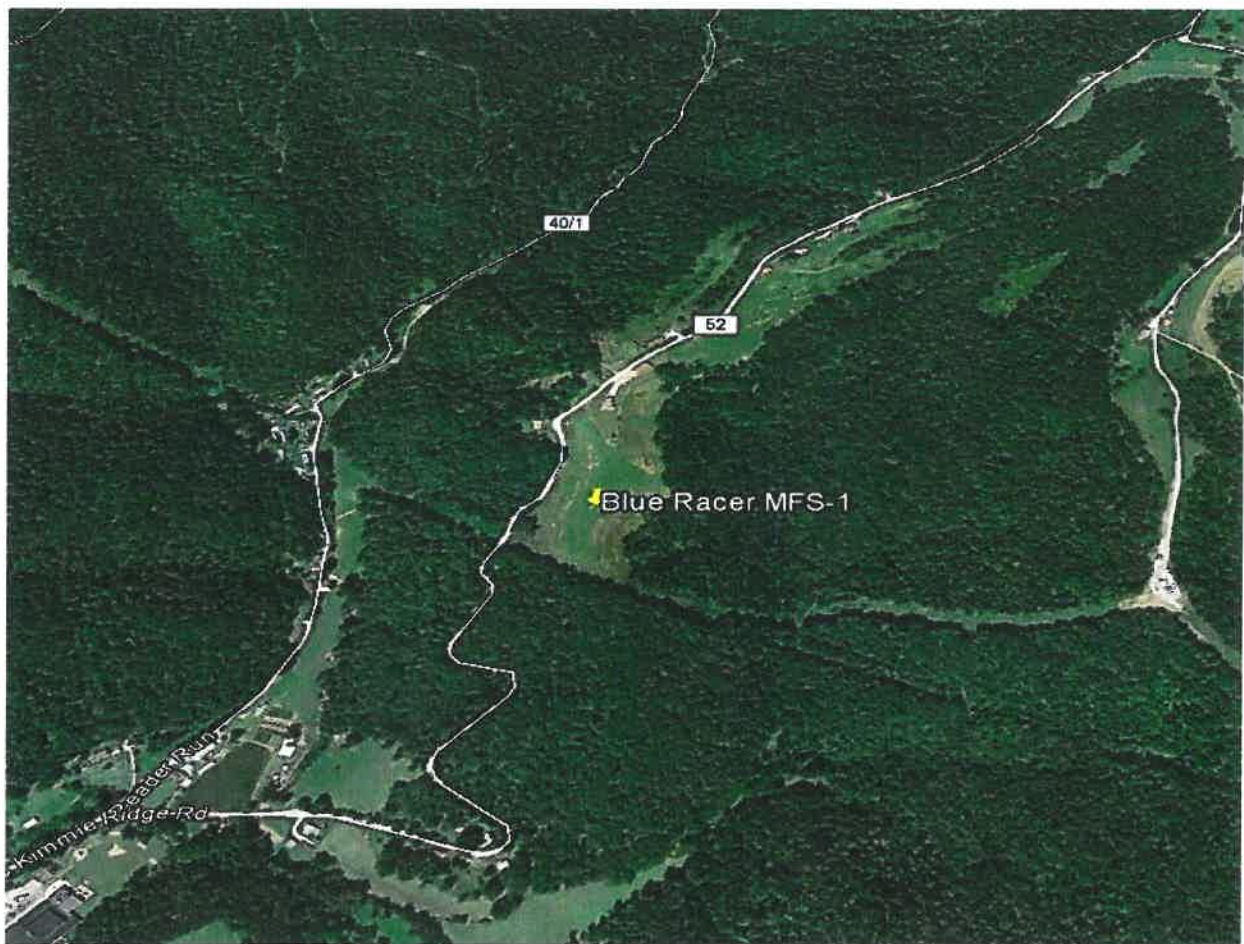
During pigging operations, the pig trap is depressurized from operating pressure to flare line pressure, and the gas is routed to the flare for combustion. Any remaining gas at the pig trap is vented to the atmosphere.

SITE INSPECTION

A site inspection was conducted on November 2, 2016 by Doug Hammell of the DAQ Enforcement Section. According to Mr. Hammell, site work is underway and the site location is appropriate for the proposed facility. The closest residence is approximately 1,500 feet from the proposed facility.

Directions to the facility are as follows:

From Reader, travel approximately 1.0 mile north on Highway 52. Site is on the right side of the road.



ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this facility consist of the equipment listed in the following table and fugitive emissions. The following table indicates which methodology was used in the emissions determination:

Emission Unit ID#	Process Equipment	Calculation Methodology
1S – 3S	1,950 hp Caterpillar 3606 4SLB Reciprocating Internal Combustion Engine (RICE) w/ Oxidation Catalyst	Manufacturer's Data, EPA AP-42 Emission Factors
4S	Site Fugitive Emissions	EPA Protocol for Equipment Leak Emission Estimates
5S	210 bbl Produced Water Tank	EPA Tanks 4.09, ProMax
6S	Pressurized Bullet Tank	ProMax
7S	84,000 gal/yr Truck Loading	EPA AP-42 Emission Factors
8S	Pressurized Condensate Loading	Engineering Estimate
9S	3.0 MMBTU/hr Glycol Reboiler	EPA AP-42 Emission Factors
10S	91 MMSCFD Glycol Dehydration Unit	GRI-GlyCalc 4.0
11S	225 MMBTU/hr Flare Control Device	TNRCC Guidance Document, Engineering Estimate
12S	Compressor Blowdowns	Engineering Estimate
13S	Engine Starter Vents	Engineering Estimate
14S	Pigging Operations	Engineering Estimate
15S	Unpaved Road Dust Emissions	EPA AP-42 Emission Factors

The following table indicates the control device efficiencies that are required for this facility:

Emission Unit	Pollutant	Control Device	Control Efficiency
1,950 hp Caterpillar 3606 4SLB RICE (1S-3S)	Carbon Monoxide	Oxidation Catalyst	42.55 %
	Volatile Organic Compounds		42.74 %
	Formaldehyde		76.19 %
91 mmscfd TEG Dehydrator Still Vent (10S)	Volatile Organic Compounds	Flare	98 %
	Hazardous Air Pollutants		98 %
Pigging Operations (14S)	Volatile Organic Compounds	Flare	98 %
	Hazardous Air Pollutants		98 %
Pressurized Bullet Tank (6S)	Volatile Organic Compounds	VRU w Flare Backup	98 %
	Hazardous Air Pollutants		98 %
Produced Water Tank (5S) (10S)	Volatile Organic Compounds	Flare	98 %
	Hazardous Air Pollutants		98 %

The total facility PTE (excluding fugitives) for the Station is shown in the following table:

Pollutant	R13-3336 PTE (tons/year)
Nitrogen Oxides	32.94
Carbon Monoxide	84.15
Volatile Organic Compounds	52.43
Particulate Matter-10/2.5	2.16
Sulfur Dioxide	0.17
Formaldehyde	2.58
Total HAPs	6.31
Carbon Dioxide Equivalent	27,584

Maximum detailed controlled point source emissions were calculated by BRM and checked for accuracy by the writer and are summarized in the table on the next page.

Blue Racer Midstream, LLC – Marcellus Field Station No. 1 (R13-3336)

Emission Point ID#	Source	NO _x		CO		VOC		PM-10		SO ₂		Formaldehyde		Total HAPs		CO ₂ e ton/year
		lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	
1E	Compressor Engine #1	2.15	9.41	5.80	25.42	3.22	14.10	0.15	0.64	0.01	0.04	0.20	0.86	0.44	1.94	7509
2E	Compressor Engine #2	2.15	9.41	5.80	25.42	3.22	14.10	0.15	0.64	0.01	0.04	0.20	0.86	0.44	1.94	7509
3E	Compressor Engine #3	2.15	9.41	5.80	25.42	3.22	14.10	0.15	0.64	0.01	0.04	0.20	0.86	0.44	1.94	7509
5E	Produced Water Storage Tank	0	0	0	0	2.58	0.59	0	0	0	0	0	0	0.04	0.01	112
6E	Pressurized Bullet Tank	0	0	0	0	<0.01	<0.01	0	0	0	0	0	0	<0.01	<0.01	0
7E	Truck Loading	0	0	0	0	86.08	0.27	0	0	0	0	0	0	1.19	<0.01	51
8E	Pressurized Truck Loading	0	0	0	0	0.01	<0.01	0	0	0	0	0	0	<0.01	<0.01	0
9E	Dehydrator Reboiler	0.29	1.29	0.25	1.08	0.02	0.07	0.02	0.10	<0.01	0.01	<0.01	<0.01	<0.01	0.02	1539
11E	Flare Combustion (Dehy Still Vent)	4.29	3.41	8.57	6.81	5.72	5.61	0.19	0.14	0.02	0.01	0.01	<0.01	0.16	0.41	3042
12E	Compressor Blowdowns	0	0	0	0	25.93	2.02	0	0	0	0	0	0	0.37	0.03	177
13E	Engine Starter Vents	0	0	0	0	28.00	1.40	0	0	0	0	0	0	0.39	0.02	123
11E	Pigging Operations	0	0	0	0	0.93	0.17	0	0	0	0	0	0	0.01	<0.01	15
Total Point Source		11.03	32.94	26.23	84.15	158.94	52.43	0.66	2.16	0.05	0.17	0.61	2.58	3.48	6.31	27584
4E	Site Fugitives	0	0	0	0	1.29	5.67	0	0	0	0	0	0	0.02	0.07	452
15E	Unpaved Dust Road Emissions	0	0	0	0	0	0	0.49	0.23	0	0	0	0	0	0	0
Total Fugitive		0	0	0	0	1.29	5.67	0.49	0.23	0	0	0	0	0.02	0.07	452
Total Sitewide		11.03	32.94	26.23	84.15	160.23	58.10	1.15	2.39	0.05	0.17	0.61	2.58	3.50	6.39	28036

REGULATORY APPLICABILITY

The following rules apply to this facility:

45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units. 45CSR2 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the proposed reboiler (9E) is below 10 MMBTU/hr. Therefore, this unit is exempt from the aforementioned sections of 45CSR2.

BRM would also be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average.

45CSR6 (To Prevent and Control Air Pollution from the Combustion of Refuse)

The purpose of this rule is to prevent and control air pollution from combustion of refuse.

BRM has proposed one (1) flare at the facility. The flare is subject to section 4, emission standards for incinerators. The flare has negligible hourly particulate matter emissions. Therefore, the facility's flare should demonstrate compliance with this section. The facility will demonstrate compliance by maintaining records of the amount of natural gas consumed by the flare and the hours of operation. The facility will also monitor the flame of the flare and record any malfunctions that may cause no flame to be present during operation.

45CSR10 (To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides)

The purpose of 45CSR10 is to establish emission limitations for sulfur dioxide which are discharged from fuel burning units. 45CSR10 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 3 (weight emission standard), 6 (registration), 7 (permits), and 8 (testing, monitoring, recordkeeping, reporting). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the proposed reboiler (9E) is below 10 MMBTU/hr. Therefore, this unit is exempt from the aforementioned sections of 45CSR10.

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

45CSR13 applies to this source due to the fact that BRM exceeds the regulatory emission threshold for criteria pollutants of 6 lb/hr and 10 ton/year, and they are also subject to a substantive requirement of an emission control rule promulgated by the Secretary (45CSR6, 40CFR60 Subparts JJJJ and OOOOa, 40CFR63 Subpart HH).

BRM paid the appropriate application fee and published the required legal advertisement for a construction permit application.

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to this source by reference of 40CFR60, Subparts JJJJ and OOOOa. These requirements are discussed under that rule below.

45CSR22 (Air Quality Management Fee Program)

BRM is not subject to 45CSR30. The Station is subject to 40CFR60 Subparts JJJJ and OOOOa, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

BRM is required to pay the appropriate annual fees and keep their Certificate to Operate current.

40CFR60 Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE))

40CFR60 Subpart JJJJ establishes emission standards for applicable SI ICE.

The 1,950 hp Caterpillar 3306 RICEs (1E-3E) were manufactured after the July 1, 2007 date for engines with a maximum rated power capacity greater than or equal to 500 hp.

The 1,950 hp Caterpillar 3306 RICEs (1E-3E) will be subject to the following emission limits: NO_x – 1.0 g/hp-hr (0.5 g/hp-hr Caterpillar spec sheet); CO – 2.0 g/hp-hr (1.35 g/hr-hr EMIT spec sheet); and VOC (excluding formaldehyde) – 0.7 g/hp-hr (0.7 g/hr-hr EMIT spec sheet). Based on the manufacturer's specifications for these engines, the emission standards will be met.

The 1,950 hp Caterpillar 3306 RICEs (1E-3E) are not certified by the manufacturer to meet the emission standards listed in 40CFR60 Subpart JJJJ. Therefore, BRM will be required to conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or three (3) years, whichever comes first, to demonstrate compliance.

40CFR60 Subpart OOOOa (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after September 18, 2015)

EPA published its New Source Performance Standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. EPA published amendments to the Subpart on September 23, 2013 and June 3, 2016. 40CFR60 Subpart OOOOa establishes emission standards and compliance schedules for the control of the pollutant greenhouse gases (GHG). The greenhouse gas standard in this subpart is in the form of a limitation on emissions of methane from affected facilities in the crude oil and natural gas source category that commence construction, modification or reconstruction after September 18, 2015. This subpart also establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from affected facilities that commence construction, modification or reconstruction after September 18, 2015. The effective date of this rule is August 2, 2016.

The Station is not a gas well pad or a natural gas processing plant. Any pneumatic controllers installed at the Station will operate at a natural gas bleed rate less than 6 standard cubic feet per hour. The storage tanks at the Station have VOC emissions less than 6 tons per year, therefore, they are not subject to Subpart OOOOa. However, this subpart does include requirements for storage tanks that have a VOC potential of 6 tpy or greater that are located at natural gas transmission segments. 40 CFR §60.5365(e) states that the potential must be calculated using a generally accepted model or calculation methodology, based on the maximum average daily throughput determined for a 30-day period of production prior to the applicable emission determination deadline. For the new installation of the condensate storage tank, this time period would be the first 30 days the vessel was placed into service. Therefore, the permit will require the applicant to record the daily production of pipeline fluids from the station being stored in the new vessel for the first 30 days of being in service and determine if the potential VOC emissions from the vessel, which includes the flash, working, and breathing losses, are at or greater than 6 tpy. If the VOC emissions is at or greater than 6 tpy, the vessel is an affected Group 2 source under this rule and the permittee will be required to reduce the VOC emissions from the storage vessel by 95%.

BRM will comply with applicable requirements for reciprocating compressors under Subpart OOOOa. This includes replacement of the reciprocating compressor rod packing at least every 26,000 hours of operation or 36 months or installation of a rod packing emissions collection system.

BRM will develop a fugitive emission monitoring plan and perform fugitive component monitoring as required by this rule. BRM will be required to conduct quarterly Leak Detection and Repair (LDAR) monitoring. BRM will have one year to conduct an initial leaks monitoring survey.

40CFR63 Subpart HH (National Emission Standards for Hazardous Air Pollutants for Oil and Natural Gas Production Facilities)

Subpart HH establishes national emission limitations and operating limitations for HAPs emitted from oil and natural gas production facilities located at major and area sources of HAP emissions. The glycol dehydration unit at the Station is subject to the area source requirements for glycol dehydration units. However, because the facility is an area source of HAP emissions and the actual average benzene emissions from the glycol dehydration unit is below 0.90 megagram per year (1.0 tons/year) it is exempt from all requirements of Subpart HH except to maintain records of actual average flowrate of natural gas to demonstrate a continuous exemption status.

40CFR63 Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines)

Subpart ZZZZ establishes national emission limitations and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations. The engines (1E-3E) at the Station are subject to the area source requirements for non-emergency spark ignition engines.

The applicability requirements for new stationary RICEs located at an area source of HAPs, is the requirement to meet the standards of 40CFR60 Subpart JJJJ. These requirements were outlined above. The proposed engine meets these standards.

Because these engines are not certified by the manufacturer, BRM will be required to perform an initial performance test within 180 days from startup, and subsequent testing every 8,760 hours or 3 years, whichever comes first.

The following rules do not apply to the facility:

45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants)

45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment)

The Station is located in Wetzel County, which is an unclassified county for all criteria pollutants, therefore the Station is not applicable to 45CSR19.

As shown in the following table, BRM is not a major source subject to 45CSR14 or 45CSR19 review. According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, the fugitive emissions are not included in the PTE below.

Pollutant	PSD (45CSR14) Threshold (tpy)	NANSR (45CSR19) Threshold (tpy)	Station PTE (tpy)	45CSR14 or 45CSR19 Review Required?
Carbon Monoxide	250	NA	84.15	No
Nitrogen Oxides	250	NA	32.94	No
Sulfur Dioxide	250	NA	0.17	No
Particulate Matter 2.5	250	NA	2.16	No
Ozone (VOC)	250	NA	52.43	No

45CSR30 (Requirements for Operating Permits)

BRM is not subject to 45CSR30. The Station is subject to 40CFR60 Subparts JJJJ and OOOOa, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

40CFR60 Subpart Kb (Standards of Performance for VOC Liquid Storage Vessels)

40CFR60 Subpart Kb does not apply to storage vessels with a capacity less than 75 cubic meters. The largest tank that BRM has proposed to install are 33.39 cubic meters each. Therefore, BRM would not be subject to this rule. This subpart also does not apply to pressure vessels designed to operate in excess of 204.9 kPa and without emissions to the atmosphere.

40CFR60 Subpart KKK (Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants)

40CFR60 Subpart KKK applies to onshore natural gas processing plants that commenced construction after January 20, 1984, and on or Before August 23, 2011. The Station is not a natural gas processing facility, therefore, BRM is not subject to this rule.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. The Station is classified as an area source of hazardous air pollutants. Listed below is a description of the primary hazardous air pollutants for this facility.

Acetaldehyde

Acetaldehyde is mainly used as an intermediate in the synthesis of other chemicals. It is common in the environment and may be formed in the body from the breakdown of ethanol. Acute (short-term) exposure to acetaldehyde results in effects including irritation of the eyes, skin, and respiratory tract. Symptoms of chronic (long-term) intoxication of acetaldehyde resemble those of alcoholism. Acetaldehyde is considered a probable human carcinogen (Group B2) based on human cancer studies and animal studies that have shown nasal tumors in rats and laryngeal tumors in hamsters.

Acrolein

Acrolein is primarily used as an intermediate in the synthesis of acrylic acid and as a biocide. It may be formed from the breakdown of certain pollutants in outdoor air or from the burning of organic matter including tobacco, or fuels such as gasoline or oil. It is toxic to humans following inhalation, oral or dermal exposures. Acute (short-term) inhalation exposure may result in upper respiratory tract irritation and congestion. No information is available on its reproductive, developmental, or carcinogenic effects in humans, and the existing animal cancer data are considered inadequate to make a determination that acrolein is carcinogenic to humans.

Benzene

Benzene is found in the air from emissions from burning coal and oil, gasoline service stations, and motor vehicle exhaust. Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidence of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. EPA has classified benzene as a Group A, human carcinogen.

Toluene

The acute toxicity of toluene is low. Toluene may cause eye, skin, and respiratory tract irritation. Short-term exposure to high concentrations of toluene (e.g., 600 ppm) may produce fatigue, dizziness, headaches, loss of coordination, nausea, and stupor; 10,000 ppm may cause death from respiratory failure. Ingestion of toluene may cause nausea and vomiting and central nervous system depression. Contact of liquid toluene with the eyes causes temporary irritation. Toluene is a skin irritant and may cause redness and pain when trapped beneath clothing or shoes; prolonged or repeated contact with toluene may result in dry and cracked skin. Because of its odor and irritant effects, toluene is regarded as having good warning properties. The chronic effects of exposure to toluene are much less severe than those of benzene. No carcinogenic

effects were reported in animal studies. Equivocal results were obtained in studies to determine developmental effects in animals. Toluene was not observed to be mutagenic in standard studies.

Ethylbenzene

Ethyl benzene is mainly used in the manufacturing of styrene. Acute (short-term) exposure to ethyl benzene in humans results in respiratory effects, such as throat irritation and chest constriction, irritation of the eyes, and neurological effects, such as dizziness. Chronic (long-term) exposure to ethyl benzene by inhalation in humans has shown conflicting results regarding its effects on the blood. Animal studies have reported effects on the blood, liver, and kidneys from chronic inhalation exposure to ethyl benzene. Limited information is available on the carcinogenic effects of ethyl benzene in humans. In a study by the National Toxicology Program (NTP), exposure to ethyl benzene by inhalation resulted in an increased incidence of kidney and testicular tumors in rats, and lung and liver tumors in mice. EPA has classified ethyl benzene as a Group D, not classifiable as to human carcinogenicity.

Xylenes

Commercial or mixed xylene usually contains about 40-65% m-xylene and up to 20% each of o-xylene and p-xylene and ethyl benzene. Xylenes are released into the atmosphere as fugitive emissions from industrial sources, from auto exhaust, and through volatilization from their use as solvents. Acute (short-term) inhalation exposure to mixed xylenes in humans results in irritation of the eyes, nose, and throat, gastrointestinal effects, eye irritation, and neurological effects. Chronic (long-term) inhalation exposure of humans to mixed xylenes results primarily in central nervous system (CNS) effects, such as headache, dizziness, fatigue, tremors, and incoordination; respiratory, cardiovascular, and kidney effects have also been reported. EPA has classified mixed xylenes as a Group D, not classifiable as to human carcinogenicity. Mixed xylenes are used in the production of ethylbenzene, as solvents in products such as paints and coatings, and are blended into gasoline.

Formaldehyde

Formaldehyde is used mainly to produce resins used in particle board products and as an intermediate in the synthesis of other chemicals. Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute (short-term) and chronic (long-term) inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. EPA considers formaldehyde a probable human carcinogen (Group B1).

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health effects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease) and lifestyle. As stated previously, *there are no federal or state ambient air quality standards for these specific chemicals*. For a complete discussion of the known health effects of each compound refer to the IRIS database located at www.epa.gov/iris.

AIR QUALITY IMPACT ANALYSIS

Modeling was not required of this source due to the fact that the facility is not subject to 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants) or 45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment) as seen in the table listed in the Regulatory Discussion section under 45CSR14/45CSR19.

SOURCE AGGREGATION

“Building, structure, facility, or installation” is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

The Source Determination Rule for the oil and gas industry was published in the Federal Register on June 3, 2016 and will become effective on August 2, 2016. EPA defined the term “adjacent” and stated that equipment and activities in the oil and gas sector that are under common control will be considered part of the same source if they are located on the same site or on sites that share equipment and are within ¼ mile of each other.

The Station will operate under SIC code 1311 (Natural Gas Extraction). There are other compressor stations operated by BRM that share the same two-digit major SIC code of 13 for natural gas extraction. Therefore, the Station does share the same SIC code as other BRM compressor stations.

“Contiguous or Adjacent” determinations are made on a case by case basis. There are no other equipment and activities in the oil and gas sector that are under common control of BRM that are located on the same site or on sites that share equipment and are within ¼ mile of each other.

Because the Station is not located on contiguous or adjacent properties with other facilities under common control, the emissions from this facility shall not be aggregated with other facilities for the purposes of making Title V and PSD determinations.

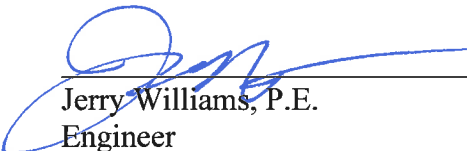
MONITORING OF OPERATIONS

BRM will be required to perform the following monitoring and recordkeeping:

- Monitor and record quantity of natural gas consumed for all engines and combustion sources.
- Monitor and record quantity of tank and truck loading throughputs.
- Monitor and record all pigging operations.
- Monitor all applicable requirements of 40CFR60 Subparts JJJJ and OOOOa and 40CFR63 Subpart HH.
- Monitor the presence of the flare pilot flame with a thermocouple or equivalent.
- Maintain records of testing conducted in accordance with the permit. Said records shall be maintained on-site or in a readily accessible off-site location
- Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
- Maintain records of the visible emission opacity tests conducted per the permit.
- Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility. These records shall include the natural gas compressor engines and ancillary equipment.
- Maintain records of all applicable requirements of 40CFR60 Subparts JJJJ and OOOOa and 40CFR63 Subpart HH.
- Maintain records of the flare design evaluation.
- The records shall be maintained on site or in a readily available off-site location maintained by BRM for a period of five (5) years.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that BRM meets all the requirements of applicable regulations. Therefore, it is recommended the Station should be granted a 45CSR13 construction permit for their facility.



Jerry Williams, P.E.
Engineer

MV 4, 2016

Date

West Virginia Department of Environmental Protection
Earl Ray Tomblin
Governor

Division of Air Quality

Randy C. Huffman
Cabinet Secretary

Permit to Construct



R13- 3336

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§22-5-1 et seq.) and 45 C.S.R. 13 – Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the above-referenced facility is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Issued to:

Blue Racer Midstream, LLC
Marcellus Field Station No. 1
103-00118

William F. Durham
Director

Issued: Draft

Facility Location: Reader, Wetzel County, West Virginia
Mailing Address: 5949 Sherry Lane, Suite 1300, Dallas, TX 75225
Facility Description: Natural gas compressor station
NAICS Codes: 211111
UTM Coordinates: 524.1 km Easting • 4380.7 km Northing • Zone 17
Permit Type: Construction
Description of Change: Natural gas compressor station

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

The source is not subject to 45CSR30.

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1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
1S	1E	Caterpillar G3606 Compressor Engine	2016	1,950 HP	OxCat (1C)
2S	2E	Caterpillar G3606 Compressor Engine	2016	1,950 HP	OxCat (2C)
3S	3E	Caterpillar G3606 Compressor Engine	2016	1,950 HP	OxCat (3C)
5S	11E	Produced Water Underground Storage Tank	2016	12,000 gal	Flare (11E)
6S	6E	Pressurized Bullet Tank	2016	30,000 gal	VRU/Flare Backup
7S	7E	Truck Loading	2016	84,000 gal/yr	None
8S	8E	Pressurized Truck Loading	2016	448,021 gal/yr	None
9S	9E	TEG Dehydration Unit Reboiler	2016	3.0 MMBTU/hr	None
10S	11E	TEG Dehydration Unit	2016	91 MMSCFD	Flare (11E)
11S	11E	Flare	2016	225 MMBTU/hr	NA
12S	12E	Compressor Blowdowns	2016	NA	None
13S	13E	Engine Starter Vents	2016	NA	None
14S	11E	Pigging Operations	2016	NA	Flare (11E)

1.1. Control Devices

Emission Unit	Pollutant	Control Device	Control Efficiency
1,950 hp Caterpillar 3606 4SLB RICE (1S-3S)	Carbon Monoxide	Oxidation Catalyst	42.55 %
	Volatile Organic Compounds		42.74 %
	Formaldehyde		76.19 %
91 mmcsfd TEG Dehydrator Still Vent (10S)	Volatile Organic Compounds	Flare	98 %
	Hazardous Air Pollutants		98 %
Pigging Operations (14S)	Volatile Organic Compounds	Flare	98 %
	Hazardous Air Pollutants		98 %
Pressurized Bullet Tank (6S)	Volatile Organic Compounds	VRU w Flare Backup	98 %
	Hazardous Air Pollutants		98 %

2.0. General Conditions

2.1. Definitions

- 2.1.1. All references to the “West Virginia Air Pollution Control Act” or the “Air Pollution Control Act” mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.
- 2.1.2. The “Clean Air Act” means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.
- 2.1.3. “Secretary” means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary’s designated representative for the purposes of this permit.

2.2. Acronyms

CAAA	Clean Air Act Amendments	NO_x	Nitrogen Oxides
CBI	Confidential Business Information	NSPS	New Source Performance Standards
CEM	Continuous Emission Monitor	PM	Particulate Matter
CES	Certified Emission Statement	PM_{2.5}	Particulate Matter less than 2.5 µm in diameter
C.F.R. or CFR	Code of Federal Regulations	PM₁₀	Particulate Matter less than 10µm in diameter
CO	Carbon Monoxide	Ppb	Pounds per Batch
C.S.R. or CSR	Codes of State Rules	Pph	Pounds per Hour
DAQ	Division of Air Quality	Ppm	Parts per Million
DEP	Department of Environmental Protection	Ppmv or ppmv	Parts per Million by Volume
dscm	Dry Standard Cubic Meter	PSD	Prevention of Significant Deterioration
FOIA	Freedom of Information Act	Psi	Pounds per Square Inch
HAP	Hazardous Air Pollutant	SIC	Standard Industrial Classification
HON	Hazardous Organic NESHAP	SIP	State Implementation Plan
HP	Horsepower	SO₂	Sulfur Dioxide
lbs/hr	Pounds per Hour	TAP	Toxic Air Pollutant
LDAR	Leak Detection and Repair	TPY	Tons per Year
M	Thousand	TRS	Total Reduced Sulfur
MACT	Maximum Achievable Control Technology	TSP	Total Suspended Particulate
MDHI	Maximum Design Heat Input	USEPA	United States Environmental Protection Agency
MM	Million	UTM	Universal Transverse Mercator
MMBtu/hr or mmbtu/hr	Million British Thermal Units per Hour	VEE	Visual Emissions Evaluation
MMCF/hr or mmcf/hr	Million Cubic Feet per Hour	VOC	Volatile Organic Compounds
NA	Not Applicable	VOL	Volatile Organic Liquids
NAAQS	National Ambient Air Quality Standards		
NESHAPS	National Emissions Standards for Hazardous Air Pollutants		

2.3. Authority

This permit is issued in accordance with West Virginia air pollution control law W.Va. Code §§ 22-5-1. et seq. and the following Legislative Rules promulgated thereunder:

- 2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation*;

2.4. Term and Renewal

- 2.4.1. This Permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any other applicable legislative rule;

2.5. Duty to Comply

- 2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Applications R13-3336 and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;
[45CSR§§13-5.11 and -10.3.]
- 2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;
- 2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;
- 2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses, and/or approvals from other agencies; i.e., local, state, and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-4.]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-5.4.]

2.10 Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.
[45CSR§13-5.1]

2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

- a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;
- d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

2.12. Emergency

- 2.12.1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by

improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

- 2.12.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of Section 2.12.3 are met.
- 2.12.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
- a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;
 - b. The permitted facility was at the time being properly operated;
 - c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and
 - d. The permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.
- 2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.
- 2.12.5 The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13. [45CSR§13-10.1.]

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

- 3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]
- 3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]
- 3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management, and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§34]
- 3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1] [State Enforceable Only]
- 3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]
- 3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
[45CSR§11-5.2.]

3.2. Monitoring Requirements [Reserved]

3.3. Testing Requirements

- 3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling

connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

- a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.
- b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.
- c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.
- d. The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1.; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:
 1. The permit or rule evaluated, with the citation number and language;
 2. The result of the test for each permit or rule condition; and,
 3. A statement of compliance or noncompliance with each permit or rule condition.

[WV Code § 22-5-4(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

- 3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports, and notifications) required by this permit recorded in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two (2) years of data shall be maintained on site. The remaining three (3) years of data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.
- 3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
[45CSR§4. *State Enforceable Only.*]

3.5. Reporting Requirements

- 3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- 3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.
- 3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

If to the DAQ:

Director
WVDEP
Division of Air Quality
601 57th Street
Charleston, WV 25304-2345

If to the US EPA:

Associate Director
Office of Air Enforcement and Compliance
Assistance
(3AP20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

3.5.4. Operating Fee

- 3.5.4.1. In accordance with 45CSR22 – Air Quality Management Fee Program, the permittee shall not operate nor cause to operate the permitted facility or other associated facilities on the same or contiguous sites comprising the plant without first obtaining and having in current effect a

Certificate to Operate (CTO). Such Certificate to Operate (CTO) shall be renewed annually, shall be maintained on the premises for which the certificate has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

3.5.4.2. In accordance with 45CSR22 – Air Quality Management Fee Program, enclosed with this permit is an Application for a Certificate to Operate (CTO). The CTO will cover the time period beginning with the date of initial startup through the following June 30. Said application and the appropriate fee shall be submitted to this office prior to the date of initial startup. For any startup date other than July 1, the permittee shall pay a fee or prorated fee in accordance with Section 4.5 of 45CSR22. A copy of this schedule may be found on the reverse side of the CTO application.

3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Source-Specific Requirements

4.1. Limitations and Standards

4.1.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:

- a. The date, place as defined in this permit, and time of sampling or measurements;
- b. The date(s) analyses were performed;
- c. The company or entity that performed the analyses;
- d. The analytical techniques or methods used;
- e. The results of the analyses; and
- f. The operating conditions existing at the time of sampling or measurement.

4.1.2. **Minor Source of Hazardous Air Pollutants (HAP).** HAP emissions from the facility shall be less than 10 tons/year of any single HAP or 25 tons/year of any combination of HAPs. Compliance with this Section shall ensure that the facility is a minor HAP source.

4.1.3. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11.]

4.1.4. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

- a. The equipment involved.
- b. Steps taken to minimize emissions during the event.
- c. The duration of the event.
- d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

- e. The cause of the malfunction.
- f. Steps taken to correct the malfunction.
- g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

4.1.5. Only those emission units/sources as identified in Table 1.0, with the exception of any *de minimis* sources as identified under Table 45-13B of 45CSR13, are authorized at the permitted facility.

5.0. Source-Specific Requirements (Engines, 1S-3S)

5.1. Limitations and Standards

- 5.1.1. Maximum emissions from each of the 1,950 hp natural gas fired reciprocating engines equipped with oxidation catalysts, Caterpillar G3606 (1S-3S) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	2.15	9.41
Carbon Monoxide	5.80	25.42
Volatile Organic Compounds (includes formaldehyde)	3.22	14.10
Formaldehyde	0.20	0.86

5.1.2. Requirements for Use of Catalytic Reduction Devices (OxCat (1C-3C))

- a. Lean-burn natural gas engine(s) equipped with oxidation catalyst air pollution control devices shall be fitted with a closed-loop automatic air/fuel ratio feedback controller to ensure emissions of regulated pollutants do not exceed permit requirement 5.1.1 for any engine/oxidation catalyst combination under varying load. The closed-loop, automatic air/fuel ratio controller shall control a fuel metering valve to ensure a lean-rich mixture;
- b. The automatic air/fuel ratio controller or closed-loop automatic feedback controller shall provide a warning or indication to the operator and/or be interlocked with the engine ignition system to cease engine operation in case of a masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element; and
- c. No person shall knowingly:
 1. Remove or render inoperative any air pollution or auxiliary air pollution control device installed subject to the requirements of this permit;
 2. Install any part or component when the principal effect of the part or component is to bypass, defeat or render inoperative any air pollution control device or auxiliary air pollution control device installed subject to the requirements of this permit; or
 3. Cause or allow engine exhaust gases to bypass any catalytic reduction device.
- d. The permittee shall follow a written operation and maintenance plan that provides the periodic and annual maintenance requirements.

5.2. Monitoring Requirements

5.2.1. Catalytic Oxidizer Control Devices (OxCat (1C-3C))

- a. The permittee shall regularly inspect, properly maintain and/or replace catalytic reduction devices and auxiliary air pollution control devices to ensure functional and effective operation of the engine's physical and operational design. The permittee shall ensure proper operation, maintenance and performance of catalytic reduction devices and auxiliary air pollution control devices by:
 1. Maintaining proper operation of the automatic air/fuel ratio controller or automatic feedback controller.

2. Following operating and maintenance recommendations of the catalyst element manufacturer.

5.3. Testing Requirements

- 5.3.1. See Facility-Wide Testing Requirements Section 3.3 and Testing Requirements of Section 10.5.

5.4. Recordkeeping Requirements

- 5.4.1. To demonstrate compliance with permit condition 5.1.1, the permittee shall maintain records of the hours of operation of each engine. Said records shall be kept in accordance with permit condition 3.4.1.
- 5.4.2. To demonstrate compliance with permit condition 5.1.2, the permittee shall maintain records of all catalytic reduction device maintenance. Said records shall be kept in accordance with permit condition 3.4.1.

5.5. Reporting Requirements

- 5.5.1. See Facility-Wide Reporting Requirements Section 3.5 and Reporting Requirements of Sections 10.6 and 11.4.

6.0. Source-Specific Hazardous Air Pollutant Requirements (Natural Gas Dehydration Unit Not Subject to MACT Standards and being controlled by a Flare Control Device)

6.1. Limitations and Standards

- 6.1.1. **Maximum Throughput Limitation.** The maximum dry natural gas throughput to the TEG dehydration unit/still column (10S) shall not exceed 91 million standard cubic feet per day (mmscfd).
- 6.1.2. The TEG dehydration unit/still column (10S) shall be controlled by the flare control device (11E) at all times. Maximum emissions from the flare (11E) (which includes produced water tank (5S), pressurized bullet tank (6S) and pigging operations) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Volatile Organic Compounds	9.23	6.38
Benzene	0.03	0.08

- 6.1.3. The flare subject to this section shall be designed and operated in accordance with the following:
- Flare shall be air-assisted.
 - Flare shall be designed for and operated with no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
 - Flare shall be operated, with a flame present at all times whenever emissions may be vented to them, except during SSM (Startup, Shutdown, Malfunctions) events.
 - A flare shall be used only where the net heating value of the gas being combusted is 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or where the net heating value of the gas being combusted is 7.45 MJ/scm (200 Btu/scf) or greater if the flares is non-assisted. The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K \sum_{i=1}^n C_i H_i$$

Where:

H_T =Net heating value of the sample, MJ/scm; where the net enthalpy per mole of off gas is based on combustion at 25 °C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 °C.

K=Constant=

$$1.740 \times 10^{-7} \left(\frac{1}{ppmv} \right) \left(\frac{g\text{-mole}}{scm} \right) \left(\frac{MJ}{kcal} \right)$$

where the standard temperature for (g-mole/scm) is 20 °C.

C_i =Concentration of sample component i in ppmv on a wet basis, which may be measured for organics by Test Method 18, but is not required to be measured using Method 18 (unless designated by the Director).

H_i =Net heat of combustion of sample component i, kcal/g-mole at 25 °C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382-76 or 88 or D4809-95 if published values are not available or cannot be calculated.

n=Number of sample components.

- e. Air-assisted flares shall be designed and operated with an exit velocity less than the velocity, V_{max} , as determined by the method specified below:

The maximum permitted velocity, V_{max} , for air-assisted flares shall be determined by the following equation.

$$V_{max} = 8.706 + 0.7084 (HT)$$

V_{max} = Maximum permitted velocity, m/sec

8.706 = Constant

0.7084 = Constant

HT = The net heating value as determined in paragraph (f)(3) of §60.18.

- 6.1.4. The permittee is not required to conduct a flare compliance assessment for concentration of sample (i.e. Method 18) and tip velocity (i.e. Method 2) until such time as the Director requests a flare compliance assessment to be conducted in accordance with section 6.3.2, but the permittee is required to conduct a flare design evaluation in accordance with section 6.4.2. Alternatively, the permittee may elect to demonstrate compliance with the flare design criteria requirements of section 6.1.3 by complying with the compliance assessment testing requirements of section 6.3.2.

6.2. Monitoring Requirements

- 6.2.1. In order to demonstrate compliance with the requirements of permit condition 6.1.3.c, the permittee shall monitor the presence or absence of a flare pilot flame using a thermocouple or any other equivalent device, except during SSM events.
- 6.2.2. The permittee shall monitor the throughput of dry natural gas fed to the dehydration system on a monthly basis for each glycol dehydration unit.

6.3. Testing Requirements

- 6.3.1. In order to demonstrate compliance with the flare opacity requirements of permit condition 6.1.3.b the permittee shall conduct a Method 22 opacity test for at least two hours. This test shall demonstrate no visible emissions are observed for more than a total of 5 minutes during any 2 consecutive hour period using 40CFR60 Appendix A Method 22. The permittee shall conduct this test within one (1) year of permit issuance or initial startup whichever is later. The visible emission checks shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40 CFR part 60, appendix A, Method 22 or from the lecture portion of 40 CFR part 60, appendix A, Method 9 certification course.
- 6.3.2. The Director may require the permittee to conduct a flare compliance assessment to demonstrate compliance with permit condition 6.1.3. This compliance assessment testing shall be conducted in accordance with Test Method 18 for organics and Test Method 2, 2A, 2C, or 2D in appendix A to 40 CFR part 60, as appropriate, or other equivalent testing approved in writing by the Director. Also, Test Method 18 may require the permittee to conduct Test Method 4 in conjunction with Test Method 18.
- 6.3.3. In order to demonstrate compliance with the minor source status of hazardous air pollutants

required by permit condition 4.1.2, upon request of the Director, the permittee shall demonstrate compliance with the HAP emissions thresholds using GLYCalc Version 3.0 or higher. The permittee shall sample in accordance with GPA Method 2166 and analyze the samples utilizing the extended GPA Method 2286 as specified in the GRI-GLYCalc V4 Technical Reference User Manual and Handbook.

- 6.3.4. Determination of glycol dehydration benzene emissions. In order to demonstrate that the benzene emissions are less than 1 tpy, the permittee shall determine the actual average benzene emissions using the procedure in the paragraph below. Emissions shall be determined either uncontrolled, or with federally enforceable controls in place.

The owner or operator shall determine actual average benzene or BTEX emissions using the model GRI-GLYCalc™, Version 3.0 or higher, and the procedures presented in the associated GRI-GLYCalc™ Technical Reference Manual. Inputs to the model shall be representative of actual operating conditions of the glycol dehydration unit and may be determined using the procedures documented in the Gas Research Institute (GRI) report entitled "Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions" (GRI-95/0368.1).
[§63.772 (b)(2)]

6.4. Recordkeeping Requirements

- 6.4.1. For the purpose of demonstrating compliance with permit conditions 6.1.3.c and 6.2.1, the permittee shall maintain records of the times and duration of all periods which the pilot flame was absent.
- 6.4.2. For the purpose of demonstrating compliance with permit conditions 6.1.4 and 6.3.2, the permittee shall maintain a record of the flare design evaluation. The flare design evaluation shall include, net heat value calculations, exit (tip) velocity calculations, and all supporting concentration calculations and other related information requested by the Director.
- 6.4.3. For the purpose of demonstrating compliance with the requirements set forth in permit conditions 6.1.3 and 6.3.3., the permittee shall maintain records of testing conducted in accordance with permit condition 6.3.3.
- 6.4.4. The permittee shall document and maintain the corresponding records specified by the on-going monitoring requirements of section 6.2 and testing requirements of section 6.3.
- 6.4.5. For the purpose of demonstrating compliance with permit condition 6.1.3.b, the permittee shall maintain records of the visible emission opacity tests conducted per Section 6.3.1.
- 6.4.6. For the purpose of demonstrating compliance with the minor source status of hazardous air pollutants required by permit condition 4.1.2, the permittee shall maintain a record of all potential to emit (PTE) HAP calculations for the entire affected facility. These records shall include the natural gas compressor engines and ancillary equipment.
- 6.4.7. The permittee shall maintain a record of the dry natural gas throughput through the dehydration system to demonstrate compliance with permit condition 6.1.1.
- 6.4.8. To demonstrate that the permittee is exempt from the requirements of § 63.764 (d) if the actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere is less than 0.90 megagram per year (1 tpy), as determined by the procedures specified in § 63.772(b)(2) and section 6.3.4 of this permit, records of the actual average benzene emissions (in terms of benzene emissions per year) shall be maintained.
[§ 63.764(e)]

- 6.4.9. All records required under Section 6.4 shall be kept in accordance with permit condition 3.4.1.

6.5. Reporting Requirements

- 6.5.1 If permittee is required by the Director to demonstrate compliance with permit condition 6.3.2, then the permittee shall submit a testing protocol at least thirty (30) days prior to testing and shall submit a notification of the testing date at least fifteen (15) days prior to testing. The permittee shall submit the testing results within sixty (60) days of testing and provide all supporting calculations and testing data.
- 6.5.2. Any deviation(s) from the allowable visible emission requirement for any emission source discovered during observations using 40CFR Part 60, Appendix A, Method 9 or 22 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of the occurrence and shall include at least the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
- 6.5.3. Any deviation(s) from the flare design and operation criteria in permit condition 6.1.3 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of discovery of such deviation.

7.0. Source-Specific Requirements (Reboiler, 9S)

7.1. Limitations and Standards

- 7.1.1. Maximum Design Heat Input. The maximum design heat input for the TEG Dehydration Unit Reboiler (9S) shall not exceed 3.0 MMBtu/hr.
- 7.1.2. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any fuel burning unit which is greater than ten (10) percent opacity based on a six minute block average.
[45CSR§2-3.1.]

7.2. Monitoring Requirements

- 7.2.1. At such reasonable times as the Secretary may designate, the permittee shall conduct Method 9 emission observations for the purpose of demonstrating compliance with permit condition 7.1.2. Method 9 shall be conducted in accordance with 40 CFR 60 Appendix A.

7.3. Testing Requirements

- 7.3.1. Compliance with the visible emission requirements of permit condition 7.1.2 shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9 or by using measurements from continuous opacity monitoring systems approved by the Director. The Director may require the installation, calibration, maintenance and operation of continuous opacity monitoring systems and may establish policies for the evaluation of continuous opacity monitoring results and the determination of compliance with the visible emission requirements of permit condition 7.1.2. Continuous opacity monitors shall not be required on fuel burning units which employ wet scrubbing systems for emission control.
[45CSR§2-3.2.]

7.4. Recordkeeping Requirements

- 7.4.1. The permittee shall maintain records of all monitoring data required by permit condition 7.2.1 documenting the date and time of each visible emission check, the emission point or equipment/source identification number, the name or means of identification of the observer, the results of the check(s), whether the visible emissions are normal for the process, and, if applicable, all corrective measures taken or planned. The permittee shall also record the general weather conditions (i.e. sunny, approximately 80°F, 6 - 10 mph NE wind) during the visual emission check(s). Should a visible emission observation be required to be performed per the requirements specified in Method 9, the data records of each observation shall be maintained per the requirements of Method 9.

7.5. Reporting Requirements

- 7.5.1. Any deviation(s) from the allowable visible emission requirement for any emission source discovered during observations using 40CFR Part 60, Appendix A, Method 9 or 22 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of the occurrence and shall include at least the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.

8.0. Source-Specific Requirements (Produced Water Storage Tank (5S), Pressurized Bullet Tank (6S))

8.1. Limitations and Standards

8.1.1. The permittee shall route all VOC and HAP emissions from the Produced Water Storage Tank (5S) to the flare (11E) and shall route all VOC and HAP emissions from the Pressurized Bullet Tank (6S) to a vapor recovery unit with flare (11E) backup, prior to release to the atmosphere. The vapor recovery system shall be designed to achieve a minimum guaranteed control efficiency of 98% for volatile organic compound (VOC) and hazardous air pollutants (HAP) emissions. Emissions from the pressurized bullet tank (6S) will be collected and compressed by the vapor recovery unit whereby the vapors are sufficiently compressed to be introduced into the inlet gas line and processed with the inlet gas.

8.1.2. *Operation and Maintenance of Air Pollution Control Equipment.* The permittee shall, to the extent practicable, install, maintain, and operate the vapor recovery unit with flare (11E) backup and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11.]

8.1.3. The maximum annual throughput of product to the storage tanks shall not exceed the following:

Storage Tank ID	Product Stored	Maximum Annual Throughput (gal/yr)
5S	12,000 gal Produced Water Tank (Underground)	84,000
6S	30,000 gal Pressurized Bullet Tank	448,021

8.1.4. Emissions from the Pressurized Bullet Tank (6S) that are recovered and routed to the vapor recovery unit with flare (11E) backup shall be designed and operated as specified in the paragraphs (a) through (c).

- a. The cover and all openings on the cover (e.g., access hatches, sampling ports, pressure relief valves and gauge wells) shall form a continuous impermeable barrier over the entire surface area of the liquid in the storage vessel.
- b. Each cover opening shall be secured in a closed, sealed position (e.g., covered by a gasketed lid or cap) whenever material is in the unit on which the cover is installed except during those times when it is necessary to use an opening as follows:
 - (i) To add material to, or remove material from the unit (this includes openings necessary to equalize or balance the internal pressure of the unit following changes in the level of the material in the unit);
 - (ii) To inspect or sample the material in the unit;
 - (iii) To inspect, maintain, repair, or replace equipment located inside the unit; or
 - (iv) To vent liquids, gases, or fumes from the unit through a closed-vent system designed and operated in accordance with the requirements 8.1.5 of this section to a control device.

- c. The Pressurized Bullet Tank (6S) thief hatch shall be weighted and properly seated. You must select gasket material for the hatch based on composition of the fluid in the storage vessel and weather conditions.
[45CSR§13-5.11]

8.1.5. The facility shall comply with the closed vent system requirements for the Pressurized Bullet Tank (6S) as noted below.

- a. You must design the closed vent system to route all gases, vapors, and fumes emitted from the material in the Pressurized Bullet Tank (6S) to the vapor recovery unit with flare (11E) backup.
- b. You must design and operate a closed vent system with no detectable emissions, as determined using olfactory, visual and auditory inspections.
- c. You must meet the requirements specified in paragraphs (i) and (ii) of this section if the closed vent system contains one or more bypass devices that could be used to divert all or a portion of the gases, vapors, or fumes from entering the control device or to a process.
 - (i) Except as provided in paragraph (ii) of this section, you must comply with either paragraph (A) or (B) of this section for each bypass device.
 - A. You must properly install, calibrate, maintain, and operate a flow indicator at the inlet to the bypass device that could divert the stream away from the control device or process to the atmosphere that sounds an alarm, or initiates notification via remote alarm to the nearest field office, when the bypass device is open such that the stream is being, or could be diverted away from the control device or process to the atmosphere.
 - B. You must secure the bypass device valve installed at the inlet to the bypass device in the non-diverting position using a car-seal or a lock-and-key type configuration.
 - (ii) Low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and safety devices are not subject to the requirements of paragraph (i) of this section.

[45CSR§13-5.11]

8.2. Monitoring Requirements

- 8.2.1. The permittee shall monitor the throughput to the storage tanks (5S, 6S) on a monthly basis.
- 8.2.2. To demonstrate compliance with permit condition 8.1.1, the permittee shall monitor the vapor recovery unit in accordance with the plans and specifications and manufacturer's recommendations.
- 8.2.3. To demonstrate compliance with the closed vent system requirements of permit conditions 8.1.4 and 8.1.5, the permittee shall:
 - a. Initial requirements. Conduct an initial visual, olfactory, and auditory inspection for defects that could result in air emissions within 180 days of start-up. Defects include, but are not limited to, visible cracks, holes, or gaps in piping; loose connections; liquid leaks; or broken or missing caps or other closure devices.
 - i. The annual inspection shall include the bypass inspection, conducted according to paragraph (c) of this section.

- ii. In the event that a leak or defect is detected, you must repair the leak or defect as soon as practicable. Grease or another applicable substance must be applied to deteriorating or cracked gaskets to improve the seal while awaiting repair.
- iii. Delay of repair of a closed vent system for which leaks or defects have been detected is allowed if the repair is technically infeasible without a shutdown, or if you determine that emissions resulting from immediate repair would be greater than the fugitive emission likely to result from delay of repair. You must complete repair of such equipment by the end of the next shutdown.
- b. Continuous requirements. Conduct an annual visual, olfactory, and auditory inspection for defects that could result in air emissions. Defect include, but are not limited to, visible cracks, holes, or gaps in piping, loose connections; liquid leaks; or broken or missing caps or other closure devices.
 - i. The annual inspection shall be conducted within 365 calendar days from the date of the previous inspection or earlier.
 - ii. The annual inspection shall include the bypass inspection, conducted according to paragraph (c) of this section.
- c. Bypass inspection. Visually inspect the bypass valve during the initial and annual inspection for the presence of the car seal or lock-and-key type configuration to verify that the valve is maintained in the non-diverting position to ensure that the vent stream is not diverted through the bypass device. If an alternative method is used, conduct the inspection of the bypass as described in the operating procedures.
- d. Unsafe to inspect requirements. You may designate any parts of the closed vent system as unsafe to inspect if the requirements in paragraphs (i) and (ii) of this section are met. Unsafe to inspect parts are exempt from the inspection requirements of paragraphs (a) and (b) of this section.
 - i. You determine that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with the requirements.
 - ii. You have a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.
- e. Difficult to inspect requirements. You may designate any parts of the closed vent system as difficult to inspect, if the requirements in paragraphs (i) and (ii) of this section are met. Difficult to inspect parts are exempt from the inspection requirements of paragraphs (a) and (b) of this section.
 - i. You determine that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface.
 - ii. You have a written plan that requires inspection of the equipment at least once every 5 years.

[45CSR§13-5.11]

8.3. Recordkeeping Requirements

- 8.3.1. All records required under Section 8.3 shall be kept in accordance with permit condition 3.4.1.
- 8.3.2. *Record of Maintenance of VRU.* The permittee shall maintain accurate records of the vapor recovery unit equipment inspection and/or preventative maintenance procedures.

8.3.3. *Record of Malfunctions of VRU.* The permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the vapor recovery unit during which excess emissions occur. For each such case, the following information shall be recorded:

- a. The equipment involved.
- b. Steps taken to minimize emissions during the event.
- c. The duration of the event.
- d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

- e. The cause of the malfunction.
- f. Steps taken to correct the malfunction.
- g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

8.3.4. To demonstrate compliance with permit condition 8.1.3, the permittee shall maintain a record of the aggregate throughput for the storage tanks on a monthly and rolling twelve month total. Said records shall be maintained on site or in a readily accessible off-site location maintained by the registrant for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

8.3.5. The permittee shall maintain a copy all design records of the process, maintenance records of equipment and any downtime hours associated with the vapor recovery unit.

8.3.6. The permittee shall maintain records of the additional monitoring required in permit condition 8.1.5 to demonstrate compliance with the 98% control efficiency claimed and the permit condition 8.1.1.

8.3.7. To demonstrate compliance with the closed vent monitoring requirements, the following records shall be maintained.

- i. The initial compliance requirements;
- ii. Each annual visual inspection conducted to demonstrate continuous compliance, including records of any repairs that were made as results of the inspection;
- iii. Bypass requirements.
 - a. Each inspection or each time the key is checked out or a record each time the alarm is sounded;
 - b. Each occurrence that the control device was bypassed. If the device was bypassed, the records shall include the date, time, and duration of the event and shall provide the reason the event occurred. The record shall also include the estimate of emissions that were released to the environment as a result of the bypass.

- iv. Any part of the system that has been designated as “unsafe to inspect” in accordance with permit condition 8.2.3.d or “difficult to inspect” in accordance with permit condition 8.2.3.e. [45CSR§13-5.11]

8.4. Reporting Requirements

- 8.4.1. Upon request by the Director, the permittee shall report deviations within a requested time from of any occurrences when the control device was operated outside of the parameters defined in the monitoring plan.
- 8.4.2. The permittee shall notify the Director of any downtime of the VRU in excess of 2%, based on the 12 month rolling total, in writing to the Director of the Division of Air Quality as soon as practicable, but within ten (10) calendar days of the discovery and shall include, at a minimum, the following information: the dates and durations of each downtime event, the cause or suspected causes for each downtime event, any corrective measures taken or planned for each downtime event.

9.0. Source-Specific Requirements (Product Loadout Racks, 7S-8S)

9.1. Limitations and Standards

- 9.1.1. The permittee shall install, maintain, and operate all above-ground piping, valves, pumps, etc. that service lines in the transport of potential sources of regulated air pollutants to prevent any substantive fugitive escape of regulated air pollutants. Any above-ground piping, valves, pumps, etc. that shows signs of excess wear and that have a reasonable potential for substantive fugitive emissions of regulated air pollutants shall be replaced.
- 9.1.2. The maximum quantity of produced water from truck loading (7S) that shall be loaded shall not exceed 84,000 gallons per year. Compliance with the Maximum Yearly Operation Limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the throughput at any given time during the previous twelve consecutive calendar months.
- 9.1.3. The maximum quantity of condensate from pressurized truck loading (8S) that shall be loaded shall not exceed 448,021 gallons per year. Compliance with the Maximum Yearly Operation Limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the throughput at any given time during the previous twelve consecutive calendar months.
- 9.1.4. The Produced Water Truck Loading (7S) and Pressurized Truck Loading (8S) shall be operated in accordance with the plans and specifications filed in Permit Application R13-3336.

9.2. Monitoring Requirements

- 9.2.1. See Facility-Wide Monitoring Requirements Section 3.2.

9.3. Recordkeeping Requirements

- 9.3.1. All records required under Section 9.3 shall be kept in accordance with permit condition 3.4.1.
- 9.3.2. To demonstrate compliance with permit conditions 9.1.2 and 9.1.3, the permittee shall maintain a record of the aggregate throughput for the truck loading (7S) and pressurized truck loading (8S) on a monthly and rolling twelve month total. Said records shall be maintained on site or in a readily accessible off-site location maintained by the registrant for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

9.4. Reporting Requirements

- 9.4.1. See Facility-Wide Reporting Requirements Section 3.5.

10.0. Source-Specific Requirements (40CFR60 Subpart JJJJ Requirements, 1S-3S)

10.1. Limitations and Standards

- 10.1.1. The provisions of this subpart are applicable to owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified below. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.
- a. Owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:
1. On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);
- [40CFR§60.4230(a)]**
- 10.1.2. The provisions of this subpart are not applicable to stationary SI ICE being tested at an engine test cell/stand. **[40CFR§60.4230(b)]**
- 10.1.3. If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable. **[40CFR§60.4230(c)]**
- 10.1.4. Stationary SI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR parts 90 and 1048, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security. **[40CFR§60.4230(e)]**
- 10.1.5. Owners and operators of facilities with internal combustion engines that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines. **[40CFR§60.4230(f)]**

10.2. Emission Standards for Owners and Operators

- 10.2.1. Owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to this subpart for their stationary SI ICE. For owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 100 HP (except gasoline and rich burn engines that use LPG) manufactured prior to January 1, 2011 that were certified to the certification emission standards in 40 CFR part 1048 applicable to engines that are not severe duty engines, if such stationary SI ICE was certified to a carbon monoxide (CO) standard above the standard in Table 1 to this subpart, then the owners and operators may meet the CO certification (not field testing) standard for which the engine was certified. **[40CFR§60.4233(e)]**
- 10.2.2. Owners and operators of stationary SI ICE that are required to meet standards that reference 40 CFR 1048.101 must, if testing their engines in use, meet the standards in that section applicable to field testing, except as indicated in paragraph (e) of this section. **[40CFR§60.4233(h)]**

- 10.2.3. Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in §60.4233 over the entire life of the engine. **[40CFR§60.4234]**

10.3. Other Requirements for Owners and Operators

- 10.3.1. After July 1, 2009, owners and operators may not install stationary SI ICE with a maximum engine power of greater than or equal to 500 HP that do not meet the applicable requirements in §60.4233, except that lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP that do not meet the applicable requirements in §60.4233 may not be installed after January 1, 2010. **[40CFR§60.4236(b)]**
- 10.3.2. The requirements of this section do not apply to owners and operators of stationary SI ICE that have been modified or reconstructed, and they do not apply to engines that were removed from one existing location and reinstalled at a new location. **[40CFR§60.4236(e)]**

10.4. Compliance Requirements for Owners and Operators

- 10.4.1. If you are an owner or operator of a stationary SI internal combustion engine and must comply with the emission standards specified in §60.4233(d) or (e), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) and (2) of this section.
- a. Purchasing an engine certified according to procedures specified in this subpart, for the same model year and demonstrating compliance according to one of the methods specified in paragraph (a) of this section.
 - b. Purchasing a non-certified engine and demonstrating compliance with the emission standards specified in §60.4233(d) or (e) and according to the requirements specified in §60.4244, as applicable, and according to paragraphs 1 and 2 below:
 - 1. If you are an owner or operator of a stationary SI internal combustion engine greater than 25 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance.
 - 2. If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance. **[40CFR§60.4243(b)]**
- 10.4.2. Owners and operators of stationary SI natural gas fired engines may operate their engines using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, the owners and operators are required to conduct a performance test to demonstrate compliance with the emission standards of §60.4233. **[40CFR§60.4243(e)]**
- 10.4.3. It is expected that air-to-fuel ratio controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller must be maintained and operated

appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times. [40CFR§60.4243(g)]

10.5. Testing Requirements for Owners and Operators

10.5.1. Owners and operators of stationary SI ICE who conduct performance tests must follow the procedures in paragraphs (a) through (f) of this section.

- a. Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in §60.8 and under the specific conditions that are specified by Table 2 to this subpart. [40CFR§60.4244(a)]
- b. You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c). If your stationary SI internal combustion engine is non-operational, you do not need to startup the engine solely to conduct a performance test; however, you must conduct the performance test immediately upon startup of the engine. [40CFR§60.4244(b)]
- c. You must conduct three separate test runs for each performance test required in this section, as specified in §60.8(f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour. [40CFR§60.4244(c)]
- d. To determine compliance with the NO_x mass per unit output emission limitation, convert the concentration of NO_x in the engine exhaust using Equation 1 of this section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{HP - hr} \quad (Eq. 1)$$

Where:

ER = Emission rate of NO_x in g/HP-hr.

C_d = Measured NO_x concentration in parts per million by volume (ppmv).

1.912×10⁻³ = Conversion constant for ppm NO_x to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour (HP-hr).

[40CFR§60.4244(d)]

- e. To determine compliance with the CO mass per unit output emission limitation, convert the concentration of CO in the engine exhaust using Equation 2 of this section:

$$ER = \frac{C_d \times 1.164 \times 10^{-3} \times Q \times T}{HP - hr} \quad (Eq. 2)$$

Where:

ER = Emission rate of CO in g/HP-hr.

C_d = Measured CO concentration in ppmv.

1.164×10^{-3} = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

[40CFR§60.4244(e)]

- f. For purposes of this subpart, when calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, convert the concentration of VOC in the engine exhaust using Equation 3 of this section:

$$ER = \frac{C_d \times 1.833 \times 10^{-3} \times Q \times T}{HP - hr} \quad (Eq. 3)$$

Where:

ER = Emission rate of VOC in g/HP-hr.

C_d = VOC concentration measured as propane in ppmv.

1.833×10^{-3} = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

[40CFR§60.4244(f)]

- g. If the owner/operator chooses to measure VOC emissions using either Method 18 of 40 CFR part 60, appendix A, or Method 320 of 40 CFR part 63, appendix A, then it has the option of correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using Equations 4 and 5 of this section. The corrected VOC concentration can then be placed on a propane basis using Equation 6 of this section.

$$RF_i = \frac{C_m}{C_{Ai}} \quad (Eq. 4)$$

Where:

RF_i = Response factor of compound i when measured with EPA Method 25A.

C_{Mi} = Measured concentration of compound i in ppmv as carbon.

C_{Ai} = True concentration of compound i in ppmv as carbon.

$$C_{\text{meas}} = RF_i \times C_{\text{icon}} \quad (\text{Eq. 5})$$

Where:

C_{icon} = Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

C_{meas} = Concentration of compound i measured by EPA Method 320, ppmv as carbon.

$$C_{\text{Req}} = 0.6098 \times C_{\text{icon}} \quad (\text{Eq. 6})$$

Where:

C_{Req} = Concentration of compound i in mg of propane equivalent per DSCM.

[40CFR§60.4244(g)]

10.6. Notification, Reports, and Records for Owners and Operators

10.6.1. Owners or operators of stationary SI ICE must meet the following notification, reporting and recordkeeping requirements.

- a. Owners and operators of all stationary SI ICE must keep records of the information in paragraphs (a)(1) through (4) of this section.
 1. All notifications submitted to comply with this subpart and all documentation supporting any notification.
 2. Maintenance conducted on the engine.
 3. If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90 and 1048.
 4. If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to §60.4243(a)(2), documentation that the engine meets the emission standards.

[40CFR§60.4245(a)]

- b. For all stationary SI emergency ICE greater than or equal to 500 HP manufactured on or after July 1, 2010, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than or equal to 130 HP and less than 500 HP manufactured on or after July 1, 2011 that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

[40CFR§60.4245(b)]
- c. Owners and operators of stationary SI ICE greater than or equal to 500 HP that have not been certified by an engine manufacturer to meet the emission standards in §60.4231 must submit an initial notification as required in §60.7(a)(1). The notification must include the information in paragraphs (c)(1) through (5) of this section.

1. Name and address of the owner or operator;
 2. The address of the affected source;
 3. Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;
 4. Emission control equipment; and
 5. Fuel used.
- [40CFR§60.4245(c)]**
- d. Owners and operators of stationary SI ICE that are subject to performance testing must submit a copy of each performance test as conducted in §60.4244 within 60 days after the test has been completed. **[40CFR§60.4245(d)]**

11.0. Source-Specific Requirements (40CFR60 Subpart OOOOa Requirements, Reciprocating Compressor Engines (1S-3S))

11.1. Limitations and Standards

- 11.1.1. You must comply with the standards in paragraphs (a) through (d) of this section for each reciprocating compressor affected facility.
 - a. You must replace the reciprocating compressor rod packing according to either paragraph (a)(1) or (2) of this section, or you must comply with paragraph (a)(3) of this section.
 1. On or before the compressor has operated for 26,000 hours. The number of hours of operation must be continuously monitored beginning upon initial startup of your reciprocating compressor affected facility, or the date of the most recent reciprocating compressor rod packing replacement, whichever is later.
 2. Prior to 36 months from the date of the most recent rod packing replacement, or 36 months from the date of startup for a new reciprocating compressor for which the rod packing has not yet been replaced.
 3. Collect the methane and VOC emissions from the rod packing using a rod packing emissions collection system that operates under negative pressure and route the rod packing emissions to a process through a closed vent system that meets the requirements of §60.5411a(a) and (d).
 - b. You must demonstrate initial compliance with standards that apply to reciprocating compressor affected facilities as required by §60.5410a(c).
 - c. You must demonstrate continuous compliance with standards that apply to reciprocating compressor affected facilities as required by §60.5415a(c).
 - d. You must perform the reporting as required by §60.5420a(b)(1) and (4) and the recordkeeping as required by §60.5420a(c)(3), (6) through (9), and (17), as applicable.

[40CFR§60.5385a]

11.2. Initial Compliance Demonstration

- 11.2.1. You must determine initial compliance with the standards for each affected facility using the requirements in paragraph (c) of this section. The initial compliance period begins on August 2, 2016 or upon initial startup, whichever is later, and ends no later than one year after the initial

startup date for your affected facility or no later than one year after August 2, 2016. The initial compliance period may be less than one full year.

- a. *NA.*
- b. *NA.*
- c. To achieve initial compliance with the standards for each reciprocating compressor affected facility you must comply with paragraphs (c)(1) through (4) of this section.
 1. If complying with §60.5385a(a)(1) or (2), during the initial compliance period, you must continuously monitor the number of hours of operation or track the number of months since the last rod packing replacement.
 2. If complying with §60.5385a(a)(3), you must operate the rod packing emissions collection system under negative pressure and route emissions to a process through a closed vent system that meets the requirements of §60.5411a(a) and (d).
 3. You must submit the initial annual report for your reciprocating compressor as required in §60.5420a(b)(1) and (4).
 4. You must maintain the records as specified in §60.5420a(c)(3) for each reciprocating compressor affected facility.

[40CFR§60.5410a]

11.3. Continuous Compliance Demonstration

11.3.1. For each reciprocating compressor affected facility complying with §60.5385a(a)(1) or (2), you must demonstrate continuous compliance according to paragraphs (1) through (3) of this section. For each reciprocating compressor affected facility complying with §60.5385a(a)(3), you must demonstrate continuous compliance according to paragraph (4) of this section.

1. You must continuously monitor the number of hours of operation for each reciprocating compressor affected facility or track the number of months since initial startup or the date of the most recent reciprocating compressor rod packing replacement, whichever is later.
2. You must submit the annual reports as required in §60.5420a(b)(1) and (4) and maintain records as required in §60.5420a(c)(3).
3. You must replace the reciprocating compressor rod packing on or before the total number of hours of operation reaches 26,000 hours or the number of months since the most recent rod packing replacement reaches 36 months.
4. You must operate the rod packing emissions collection system under negative pressure and continuously comply with the cover and closed vent requirements in §60.5416a(a) and (b).

[40CFR§60.5415a]

11.4. Notification, Recordkeeping and Reporting Requirements

11.4.1. You must submit the notifications according to paragraphs (a)(1) and (2) of this section if you own or operate one or more of the affected facilities specified in §60.5365a that was constructed, modified or reconstructed during the reporting period.

[40CFR§60.5420a(a)]

11.4.2. Reporting requirements. You must submit annual reports containing the information specified in paragraphs (b)(1) and (4) of this section to the Administrator and performance test reports as specified in paragraph (b)(9) of this section. You must submit annual reports following the procedure specified in paragraph (b)(11) of this section. The initial annual report is due no later than 90 days after the end of the initial compliance period as determined according to §60.5410a. Subsequent annual reports are due no later than same date each year as the initial annual report. If you own or operate more than one affected facility, you may submit one report for multiple affected facilities provided the report contains all of the information required as specified in paragraphs (b)(1) and (4) of this section. Annual reports may coincide with title V reports as long as all the required elements of the annual report are included. You may arrange with the Administrator a common schedule on which reports required by this part may be submitted as long as the schedule does not extend the reporting period.

(1) The general information specified in paragraphs (1)(i) through (iv) of this section.

(i) The company name, facility site name associated with the affected facility, US Well ID or US Well ID associated with the affected facility, if applicable, and address of the affected facility. If an address is not available for the site, include a description of the site location and provide the latitude and longitude coordinates of the site in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983.

(ii) An identification of each affected facility being included in the annual report.

(iii) Beginning and ending dates of the reporting period.

(iv) A certification by a certifying official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(4) For each reciprocating compressor affected facility, the information specified in paragraphs (i) through (ii) of this section.

(i) The cumulative number of hours of operation or the number of months since initial startup or since the previous reciprocating compressor rod packing replacement, whichever is later. Alternatively, a statement that emissions from the rod packing are being routed to a process through a closed vent system under negative pressure.

(ii) Records of deviations specified in paragraph (c)(3)(iii) of this section that occurred during the reporting period.

[40CFR§60.5420a]

11.4.3. To demonstrate compliance with permit condition 11.1.1.d, the permittee shall maintain the reporting as required by §60.5420a(b)(1) and (4) and the recordkeeping as required by §60.5420a(c)(3), (6) through (9), and (17), as applicable.

12.0. Source-Specific Requirements (40CFR60 Subpart OOOOa Requirements, Fugitive Emission Components)

12.1. Limitations and Standards

12.1.1. For each affected facility under §60.5365a(j), you must reduce GHG (in the form of a limitation on emissions of methane) and VOC emissions by complying with the requirements of paragraphs (a) through (j) of this section. These requirements are independent of the closed vent system and cover requirements in §60.5411a.

- (a) You must monitor all fugitive emission components, as defined in §60.5430a, in accordance with paragraphs (b) through (g) of this section. You must repair all sources of fugitive emissions in accordance with paragraph (h) of this section. You must keep records in accordance with paragraph (i) of this section and report in accordance with paragraph (j) of this section. For purposes of this section, fugitive emissions are defined as: Any visible emission from a fugitive emissions component observed using optical gas imaging or an instrument reading of 500 ppm or greater using Method 21.
- (b) You must develop an emissions monitoring plan that covers the collection of fugitive emissions components at well sites and compressor stations within each company-defined area in accordance with paragraphs (c) and (d) of this section.
- (c) Fugitive emissions monitoring plans must include the elements specified in paragraphs (c)(1) through (8) of this section, at a minimum.
 - (1) Frequency for conducting surveys. Surveys must be conducted at least as frequently as required by paragraphs (f) and (g) of this section.
 - (2) Technique for determining fugitive emissions (i.e., Method 21 at 40 CFR part 60, appendix A-7, or optical gas imaging).
 - (3) Manufacturer and model number of fugitive emissions detection equipment to be used.
 - (4) Procedures and timeframes for identifying and repairing fugitive emissions components from which fugitive emissions are detected, including timeframes for fugitive emission components that are unsafe to repair. Your repair schedule must meet the requirements of paragraph (h) of this section at a minimum.
 - (5) Procedures and timeframes for verifying fugitive emission component repairs.
 - (6) Records that will be kept and the length of time records will be kept.
 - (7) If you are using optical gas imaging, your plan must also include the elements specified in paragraphs (c)(7)(i) through (vii) of this section.
 - (i) Verification that your optical gas imaging equipment meets the specifications of paragraphs (c)(7)(i)(A) and (B) of this section. This verification is an initial verification and may either be performed by the facility, by the manufacturer, or by a third party. For the purposes of complying with the fugitives emissions monitoring program with optical gas imaging, a fugitive emission is defined as any visible emissions observed using optical gas imaging.
 - (A) Your optical gas imaging equipment must be capable of imaging gases in the spectral range for the compound of highest concentration in the potential fugitive emissions.

- (B) Your optical gas imaging equipment must be capable of imaging a gas that is half methane, half propane at a concentration of 10,000 ppm at a flow rate of ≤ 60 g/hr from a quarter inch diameter orifice.
- (ii) Procedure for a daily verification check.
- (iii) Procedure for determining the operator's maximum viewing distance from the equipment and how the operator will ensure that this distance is maintained.
- (iv) Procedure for determining maximum wind speed during which monitoring can be performed and how the operator will ensure monitoring occurs only at wind speeds below this threshold.
- (v) Procedures for conducting surveys, including the items specified in paragraphs (c)(7)(v)(A) through (C) of this section.
 - (A) How the operator will ensure an adequate thermal background is present in order to view potential fugitive emissions.
 - (B) How the operator will deal with adverse monitoring conditions, such as wind.
 - (C) How the operator will deal with interferences (e.g., steam).
- (vi) Training and experience needed prior to performing surveys.
- (vii) Procedures for calibration and maintenance. At a minimum, procedures must comply with those recommended by the manufacturer.
- (8) If you are using Method 21 of appendix A-7 of this part, your plan must also include the elements specified in paragraphs (c)(8)(i) and (ii) of this section. For the purposes of complying with the fugitive emissions monitoring program using Method 21 a fugitive emission is defined as an instrument reading of 500 ppm or greater.
 - (i) Verification that your monitoring equipment meets the requirements specified in Section 6.0 of Method 21 at 40 CFR part 60, appendix A-7. For purposes of instrument capability, the fugitive emissions definition shall be 500 ppm or greater methane using a FID-based instrument. If you wish to use an analyzer other than a FID-based instrument, you must develop a site-specific fugitive emission definition that would be equivalent to 500 ppm methane using a FID-based instrument (e.g., 10.6 eV PID with a specified isobutylene concentration as the fugitive emission definition would provide equivalent response to your compound of interest).
 - (ii) Procedures for conducting surveys. At a minimum, the procedures shall ensure that the surveys comply with the relevant sections of Method 21 at 40 CFR part 60, appendix A-7, including Section 8.3.1.
- (d) Each fugitive emissions monitoring plan must include the elements specified in paragraphs (d)(1) through (4) of this section, at a minimum, as applicable.
 - (1) Sitemap.
 - (2) A defined observation path that ensures that all fugitive emissions components are within sight of the path. The observation path must account for interferences.
 - (3) If you are using Method 21, your plan must also include a list of fugitive emissions components to be monitored and method for determining location of fugitive emissions

components to be monitored in the field (e.g. tagging, identification on a process and instrumentation diagram, etc.).

- (4) Your plan must also include the written plan developed for all of the fugitive emission components designated as difficult-to-monitor in accordance with paragraph (g)(3)(i) of this section, and the written plan for fugitive emission components designated as unsafe-to-monitor in accordance with paragraph (g)(3)(ii) of this section.
- (e) Each monitoring survey shall observe each fugitive emissions component, as defined in §60.5430a, for fugitive emissions.
- (f)(1) You must conduct an initial monitoring survey within 60 days of the startup of production, as defined in §60.5430a, for each collection of fugitive emissions components at a new well site or by June 3, 2017, whichever is later. For a modified collection of fugitive emissions components at a well site, the initial monitoring survey must be conducted within 60 days of the first day of production for each collection of fugitive emission components after the modification or by June 3, 2017, whichever is later.
- (2) You must conduct an initial monitoring survey within 60 days of the startup of a new compressor station for each new collection of fugitive emissions components at the new compressor station or by June 3, 2017, whichever is later. For a modified collection of fugitive components at a compressor station, the initial monitoring survey must be conducted within 60 days of the modification or by June 3, 2017, whichever is later.
- (g) A monitoring survey of each collection of fugitive emissions components at a well site or at a compressor station must be performed at the frequencies specified in paragraphs (g)(1) and (2) of this section, with the exceptions noted in paragraphs (g)(3) and (4) of this section.
 - (1) A monitoring survey of each collection of fugitive emissions components at a well site within a company-defined area must be conducted at least semiannually after the initial survey. Consecutive semiannual monitoring surveys must be conducted at least 4 months apart.
 - (2) A monitoring survey of the collection of fugitive emissions components at a compressor station within a company-defined area must be conducted at least quarterly after the initial survey. Consecutive quarterly monitoring surveys must be conducted at least 60 days apart.
 - (3) Fugitive emissions components that cannot be monitored without elevating the monitoring personnel more than 2 meters above the surface may be designated as difficult-to-monitor. Fugitive emissions components that are designated difficult-to-monitor must meet the specifications of paragraphs (g)(3)(i) through (iv) of this section.
 - (i) A written plan must be developed for all of the fugitive emissions components designated difficult-to-monitor. This written plan must be incorporated into the fugitive emissions monitoring plan required by paragraphs (b), (c), and (d) of this section.
 - (ii) The plan must include the identification and location of each fugitive emissions component designated as difficult-to-monitor.
 - (iii) The plan must include an explanation of why each fugitive emissions component designated as difficult-to-monitor is difficult-to-monitor.

- (iv) The plan must include a schedule for monitoring the difficult-to-monitor fugitive emissions components at least once per calendar year.
- (4) Fugitive emissions components that cannot be monitored because monitoring personnel would be exposed to immediate danger while conducting a monitoring survey may be designated as unsafe-to-monitor. Fugitive emissions components that are designated unsafe-to-monitor must meet the specifications of paragraphs (g)(4)(i) through (iv) of this section.
 - (i) A written plan must be developed for all of the fugitive emissions components designated unsafe-to-monitor. This written plan must be incorporated into the fugitive emissions monitoring plan required by paragraphs (b), (c), and (d) of this section.
 - (ii) The plan must include the identification and location of each fugitive emissions component designated as unsafe-to-monitor.
 - (iii) The plan must include an explanation of why each fugitive emissions component designated as unsafe-to-monitor is unsafe-to-monitor.
 - (iv) The plan must include a schedule for monitoring the fugitive emissions components designated as unsafe-to-monitor.
- (5) The requirements of paragraph (g)(2) of this section are waived for any collection of fugitive emissions components at a compressor station located within an area that has an average calendar month temperature below 0°Fahrenheit for two of three consecutive calendar months of a quarterly monitoring period. The calendar month temperature average for each month within the quarterly monitoring period must be determined using historical monthly average temperatures over the previous three years as reported by a National Oceanic and Atmospheric Administration source or other source approved by the Administrator. The requirements of paragraph (g)(2) of this section shall not be waived for two consecutive quarterly monitoring periods.
- (h) Each identified source of fugitive emissions shall be repaired or replaced in accordance with paragraphs (h)(1) and (2) of this section. For fugitive emissions components also subject to the repair provisions of §§60.5416a(b)(9) through (12) and (c)(4) through (7), those provisions apply instead to those closed vent system and covers, and the repair provisions of paragraphs (h)(1) and (2) of this section do not apply to those closed vent systems and covers.
 - (1) Each identified source of fugitive emissions shall be repaired or replaced as soon as practicable, but no later than 30 calendar days after detection of the fugitive emissions.
 - (2) If the repair or replacement is technically infeasible, would require a vent blowdown, a compressor station shutdown, a well shutdown or well shut-in, or would be unsafe to repair during operation of the unit, the repair or replacement must be completed during the next compressor station shutdown, well shutdown, well shut-in, after an unscheduled, planned or emergency vent blowdown or within 2 years, whichever is earlier.
 - (3) Each repaired or replaced fugitive emissions component must be resurveyed as soon as practicable, but no later than 30 days after being repaired, to ensure that there are no fugitive emissions.
 - (i) For repairs that cannot be made during the monitoring survey when the fugitive emissions are initially found, the operator may resurvey the repaired fugitive emissions components using either Method 21 or optical gas imaging within 30 days of finding such fugitive emissions.

- (ii) For each repair that cannot be made during the monitoring survey when the fugitive emissions are initially found, a digital photograph must be taken of that component or the component must be tagged for identification purposes. The digital photograph must include the date that the photograph was taken, must clearly identify the component by location within the site (e.g., the latitude and longitude of the component or by other descriptive landmarks visible in the picture).
- (iii) Operators that use Method 21 to resurvey the repaired fugitive emissions components are subject to the resurvey provisions specified in paragraphs (h)(3)(iii)(A) and (B) of this section.
 - (A) A fugitive emissions component is repaired when the Method 21 instrument indicates a concentration of less than 500 ppm above background or when no soap bubbles are observed when the alternative screening procedures specified in section 8.3.3 of Method 21 are used.
 - (B) Operators must use the Method 21 monitoring requirements specified in paragraph (c)(8)(ii) of this section or the alternative screening procedures specified in section 8.3.3 of Method 21.
- (iv) Operators that use optical gas imaging to resurvey the repaired fugitive emissions components, are subject to the resurvey provisions specified in paragraphs (h)(3)(iv)(A) and (B) of this section.
 - (A) A fugitive emissions component is repaired when the optical gas imaging instrument shows no indication of visible emissions.
 - (B) Operators must use the optical gas imaging monitoring requirements specified in paragraph (c)(7) of this section.
- (i) Records for each monitoring survey shall be maintained as specified §60.5420a(c)(15).
- (j) Annual reports shall be submitted for each collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station that include the information specified in §60.5420a(b)(7). Multiple collection of fugitive emissions components at a well site or at a compressor station may be included in a single annual report.

12.2. Initial Compliance Demonstration

- 12.2.1. You must determine initial compliance with the standards for each affected facility using the requirements in paragraphs (a) through (j) of this section. The initial compliance period begins on August 2, 2016, or upon initial startup, whichever is later, and ends no later than 1 year after the initial startup date for your affected facility or no later than 1 year after August 2, 2016. The initial compliance period may be less than one full year.
[40 C.F.R. § 60.5410a]
- 12.2.2. To achieve initial compliance with the fugitive emission standards for each collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station, you must comply with paragraphs (j)(1) through (5) of this section.
 - (1) You must develop a fugitive emissions monitoring plan as required in §60.5397a(b)(c), and (d).
 - (2) You must conduct an initial monitoring survey as required in §60.5397a(f).

- (3) You must maintain the records specified in §60.5420a(c)(15).
 - (4) You must repair each identified source of fugitive emissions for each affected facility as required in §60.5397a(h).
 - (5) You must submit the initial annual report for each collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station as required in §60.5420a(b)(1) and (7).
- [40 C.F.R. § 60.5410a(j)]**

12.3. Continuous Compliance Demonstration

12.3.1. For each collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station, you must demonstrate continuous compliance with the fugitive emission standards specified in §60.5397a according to paragraphs (h)(1) through (4) of this section.

- (1) You must conduct periodic monitoring surveys as required in §60.5397a(g).
- (2) You must repair or replace each identified source of fugitive emissions as required in §60.5397a(h).
- (3) You must maintain records as specified in §60.5420a(c)(15).
- (4) You must submit annual reports for collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station as required in §60.5420a(b)(1) and (7).

[40 C.F.R. § 60.5415a(h)]

12.4. Notification, Recordkeeping and Reporting Requirements

12.4.1. You must submit the notifications according to paragraphs (a)(1) and (2) of this section if you own or operate one or more of the affected facilities specified in §60.5365a that was constructed, modified or reconstructed during the reporting period.

- (1) If you own or operate an affected facility that is the group of all equipment within a process unit at an onshore natural gas processing plant, or a sweetening unit at an onshore natural gas processing plant, you must submit the notifications required in §60.7(a)(1), (3), and (4). If you own or operate a well, centrifugal compressor, reciprocating compressor, pneumatic controller, pneumatic pump, storage vessel, or collection of fugitive emissions components at a well site or collection of fugitive emissions components at a compressor station, you are not required to submit the notifications required in §60.7(a)(1), (3), and (4).

[40 C.F.R. § 60.5420a(a)]

12.4.2. *Reporting requirements.* You must submit annual reports containing the information specified in paragraphs (b)(1) through (8) and (12) of this section and performance test reports as specified in paragraph (b)(9) or (10) of this section, if applicable. You must submit annual reports following the procedure specified in paragraph (b)(11) of this section. The initial annual report is due no later than 90 days after the end of the initial compliance period as determined according to §60.5410a. Subsequent annual reports are due no later than same date each year as the initial annual report. If you own or operate more than one affected facility, you may submit one report for multiple affected facilities provided the report contains all of the information required as specified in paragraphs (b)(1) through (8) of this section. Annual reports may coincide with title V reports as long as all the required elements of the annual report are included. You may arrange with the Administrator a common schedule on which reports required by this part may be submitted as long as the schedule does not extend the reporting period.

- (1) The general information specified in paragraphs (b)(1)(i) through (iv) of this section for all reports.
 - (i) The company name, facility site name associated with the affected facility, US Well ID or US Well ID associated with the affected facility, if applicable, and address of the affected facility. If an address is not available for the site, include a description of the site location and provide the latitude and longitude coordinates of the site in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983.
 - (ii) An identification of each affected facility being included in the annual report.
 - (iii) Beginning and ending dates of the reporting period.
 - (iv) A certification by a certifying official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (7) For the collection of fugitive emissions components at each well site and the collection of fugitive emissions components at each compressor station within the company-defined area, the records of each monitoring survey including the information specified in paragraphs (b)(7)(i) through (xii) of this section. For the collection of fugitive emissions components at a compressor station, if a monitoring survey is waived under §60.5397a(g)(5), you must include in your annual report the fact that a monitoring survey was waived and the calendar months that make up the quarterly monitoring period for which the monitoring survey was waived.
 - (i) Date of the survey.
 - (ii) Beginning and end time of the survey.
 - (iii) Name of operator(s) performing survey. If the survey is performed by optical gas imaging, you must note the training and experience of the operator.
 - (iv) Ambient temperature, sky conditions, and maximum wind speed at the time of the survey.
 - (v) Monitoring instrument used.
 - (vi) Any deviations from the monitoring plan or a statement that there were no deviations from the monitoring plan.
 - (vii) Number and type of components for which fugitive emissions were detected.
 - (viii) Number and type of fugitive emissions components that were not repaired as required in §60.5397a(h).
 - (ix) Number and type of difficult-to-monitor and unsafe-to-monitor fugitive emission components monitored.
 - (x) The date of successful repair of the fugitive emissions component.
 - (xi) Number and type of fugitive emission components placed on delay of repair and explanation for each delay of repair.
 - (xii) Type of instrument used to resurvey a repaired fugitive emissions component that could not be repaired during the initial fugitive emissions finding.

[40 C.F.R. § 60.5420a(b)]

12.4.3. *Recordkeeping requirements.* You must maintain the records identified as specified in §60.7(f) and in paragraphs (c)(1) through (16) of this section. All records required by this subpart must be maintained either onsite or at the nearest local field office for at least 5 years. Any records required to be maintained by this subpart that are submitted electronically via the EPA's CDX may be maintained in electronic format.

- (15) For each collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station, the records identified in paragraphs (c)(15)(i) through (iii) of this section.

- (i) The fugitive emissions monitoring plan as required in §60.5397a(b), (c), and (d).
- (ii) The records of each monitoring survey as specified in paragraphs (c)(15)(ii)(A) through (I) of this section.
 - (A) Date of the survey.
 - (B) Beginning and end time of the survey.
 - (C) Name of operator(s) performing survey. You must note the training and experience of the operator.
 - (D) Monitoring instrument used.
 - (E) When optical gas imaging is used to perform the survey, one or more digital photographs or videos, captured from the optical gas imaging instrument used for conduct of monitoring, of each required monitoring survey being performed. The digital photograph must include the date the photograph was taken and the latitude and longitude of the collection of fugitive emissions components at a well site or collection of fugitive emissions components at a compressor station imbedded within or stored with the digital file. As an alternative to imbedded latitude and longitude within the digital file, the digital photograph or video may consist of an image of the monitoring survey being performed with a separately operating GPS device within the same digital picture or video, provided the latitude and longitude output of the GPS unit can be clearly read in the digital image.
 - (F) Fugitive emissions component identification when Method 21 is used to perform the monitoring survey.
 - (G) Ambient temperature, sky conditions, and maximum wind speed at the time of the survey.
 - (H) Any deviations from the monitoring plan or a statement that there were no deviations from the monitoring plan.
 - (I) Documentation of each fugitive emission, including the information specified in paragraphs (c)(15)(ii)(I)(1) through (12) of this section.
 - (1) Location.
 - (2) Any deviations from the monitoring plan or a statement that there were no deviations from the monitoring plan.
 - (3) Number and type of components for which fugitive emissions were detected.
 - (4) Number and type of difficult-to-monitor and unsafe-to-monitor fugitive emission components monitored.
 - (5) Instrument reading of each fugitive emissions component that requires repair when Method 21 is used for monitoring.
 - (6) Number and type of fugitive emissions components that were not repaired as required in §60.5397a(h).
 - (7) Number and type of components that were tagged as a result of not being repaired during the monitoring survey when the fugitive emissions were initially found as required in §60.5397a(h)(3)(ii).

- (8) If a fugitive emissions component is not tagged, a digital photograph or video of each fugitive emissions component that could not be repaired during the monitoring survey when the fugitive emissions were initially found as required in §60.5397a(h)(3)(ii). The digital photograph or video must clearly identify the location of the component that must be repaired. Any digital photograph or video required under this paragraph can also be used to meet the requirements under paragraph (c)(15)(ii)(E) of this section, as long as the photograph or video is taken with the optical gas imaging instrument, includes the date and the latitude and longitude are either imbedded or visible in the picture.
 - (9) Repair methods applied in each attempt to repair the fugitive emissions components.
 - (10) Number and type of fugitive emission components placed on delay of repair and explanation for each delay of repair.
 - (11) The date of successful repair of the fugitive emissions component.
 - (12) Instrumentation used to resurvey a repaired fugitive emissions component that could not be repaired during the initial fugitive emissions finding.
 - (iii) For the collection of fugitive emissions components at a compressor station, if a monitoring survey is waived under §60.5397a(g)(5), you must maintain records of the average calendar month temperature, including the source of the information, for each calendar month of the quarterly monitoring period for which the monitoring survey was waived.
- [40 C.F.R. § 60.5420a(c)]

13.0. Source-Specific Requirements (40CFR63 Subpart ZZZZ Requirements, 1S-3S)

13.1. Limitations and Standards

- 13.1.1. The permittee must comply with the applicable operating limitations in this section no later than October 19, 2013.

[40 C.F.R. § 63.6595(a)]

- 13.1.2. *Stationary RICE subject to Regulation under 40 CFR Part 60.* An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

The permittee meets the criteria of paragraph (c)(1), which is for a new or reconstructed stationary RICE located at an area source. The permittee must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart JJJJ.

[40 C.F.R. § 63.6590(c)]

14.0. Source-Specific Requirements (Pigging Operations (14S))

14.1. Limitations and Standards

- 14.1.1. The maximum number of pigging events per year shall not exceed 365, with an estimated 45 scf per event. Compliance shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the pigging events at any given time during the previous twelve consecutive calendar months.
- 14.1.2. The pigging operations (14S) shall be controlled by a flare (11E) and operated in accordance with the plans and specifications filed in Permit Application R13-3336.

14.2. Recordkeeping Requirements

- 14.2.1. All records required under section 14.2 of this permit shall be kept in accordance with permit condition 3.4.1.
- 14.2.2. To demonstrate compliance with permit condition 14.1.1 of this permit, the permittee shall maintain a record of the pigging events and estimated volume per event (scf) on a monthly and rolling twelve month total.

CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature¹

(please use blue ink)

Responsible Official or Authorized Representative

Date

Name & Title

(please print or type)

Name

Title

Telephone No.

Fax No.

¹ This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

- a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:
 - (i) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), or
 - (ii) the delegation of authority to such representative is approved in advance by the Director;
- b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;
- c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of U.S. EPA); or
- d. The designated representative delegated with such authority and approved in advance by the Director.

Williams, Jerry

From: Jill Thornberry <JThornberry@blueracermidstream.com>
Sent: Wednesday, October 26, 2016 2:24 PM
To: Williams, Jerry
Subject: RE: R13-3339 Pre-Draft Permit
Attachments: 103-00118_PERM_13-3336 draft _ REV2 BRMcomments.doc; MFS1 Revision Pages 10.26.2016.pdf

Jerry,

Thanks for a follow-up call yesterday and again thanks for the extra day to respond. Please find attached the comments to the pre-draft permit for MFS#1, as well as the corresponding application revision pages we discussed. Please let me know if you have any questions or need any additional information.

Thanks,
Jill

Jill Thornberry
Sr. Environmental Specialist

Blue Racer Midstream, LLC

553 Wheeling Avenue

Cambridge, OH 43725

740.421.9255 x119 – office

740.255.4800 – cell

jthornberry@blueracermidstream.com



ID # 103-00118
Reg R13-3336
Company BLUE RACER MIDSTREAM
Facility MFS #1 Initials JW

From: Williams, Jerry [mailto:Jerry.Williams@wv.gov]
Sent: Thursday, October 20, 2016 11:24 AM
To: Jill Thornberry
Subject: RE: R13-3339 Pre-Draft Permit

Jill,

Thanks for the phone call. Please send me an updated Attachment M for the flare, Attachment L for the tank, and Attachment I. Please review the attached.

Thanks
Jerry

From: Jill Thornberry [mailto:JThornberry@blueracermidstream.com]
Sent: Wednesday, October 19, 2016 4:40 PM
To: Williams, Jerry <Jerry.Williams@wv.gov>
Subject: RE: R13-3339 Pre-Draft Permit

Jerry,

NON-CONFIDENTIAL

I have been out at some of our field locations this week and not in the office, that may be where you left the message. Our phone system doesn't allow us to note that we are away from the office when people call the office, so I apologize. Please always feel free to call my cell phone as that is usually the best way to reach me.

I will be in the office tomorrow and can contact you to discuss the email below. I think you are asking to have the Attachment M (flare system) form updated, if that is the case, I can work on it tomorrow.

Thanks,
Jill

Jill Thornberry
Sr. Environmental Specialist

Blue Racer Midstream, LLC
553 Wheeling Avenue
Cambridge, OH 43725
740.421.9255 x119 – office
740.255.4800 – cell
jthornberry@blueracermidstream.com



From: Williams, Jerry [<mailto:Jerry.Williams@wv.gov>]
Sent: Wednesday, October 19, 2016 12:47 PM
To: Jill Thornberry
Subject: RE: R13-3339 Pre-Draft Permit

Jill,

I left you a message to discuss these comments. Your application indicates it is a non-assist flare, and now you claim air-assist. I really want to proceed with going to notice with these documents, so please let me know. If it is air-assist you will need to resubmit your air pollution control device for this flare.

Please let me know.

Thanks
Jerry

From: Jill Thornberry [<mailto:JThornberry@blueracermidstream.com>]
Sent: Monday, October 17, 2016 4:47 PM
To: Williams, Jerry <Jerry.Williams@wv.gov>
Subject: RE: R13-3339 Pre-Draft Permit

Jerry,

Again I apologize for not getting these draft permit comments back to you on Friday. Please see attached the comments/questions (incorporate by redline) on the draft permit for MFS#1. I have also attached the revised flare datasheet we discussed. Also, I would like to point out that the produced water storage tank (5S) is a 12,000 gal. underground storage tank that is controlled by the flare. Please feel free to call me with questions. I appreciate the

opportunity to review this draft permit and would appreciate the opportunity to review it again prior to it being finalized.

Thanks,
Jill

Jill Thornberry
Sr. Environmental Specialist

Blue Racer Midstream, LLC
553 Wheeling Avenue
Cambridge, OH 43725
740.421.9255 x119 – office
740.255.4800 – cell
jthornberry@blueracermidstream.com



From: Williams, Jerry [<mailto:Jerry.Williams@wv.gov>]
Sent: Friday, October 07, 2016 2:13 PM
To: Jill Thornberry
Subject: R13-3339 Pre-Draft Permit

Jill,

Please review the attached pre-draft permit for Marcellus Field No. 1 station and respond with comments and information on the flare MDHI by October 14.

Thanks
Jerry

INTRODUCTION

Blue Racer Midstream, LLC (BRM) is submitting this Rule 13 Air Permit Application to authorize emissions from the installation of equipment at the Marcellus Field Station No. 1 (the Station) located near Reader, West Virginia, in Wetzel County. The Station is a minor source of air contaminants and will not trigger major source permitting for any criteria pollutants.

The Station will consist of the following equipment:

- Three (3) Caterpillar G3606 compressor engines and associated blowdowns and starter vents;
- One (1) glycol dehydration unit (maximum capacity of 91 million standard cubic feet per day, MMSCFD) and associated glycol reboiler;
- One (1) underground produced water tank and associated loading;
- One (1) pressurized bullet tank controlled by a vapor recovery unit (VRU) and associated loading;
- One (1) flare; and,
- Fugitive components.

The Station emits carbon monoxide (CO), oxides of nitrogen (NO_x), particulate matter (PM), including PM with aerodynamic diameters of 10 and 2.5 microns or less (PM₁₀ and PM_{2.5}, respectively), sulfur dioxide (SO₂), volatile organic compounds (VOC), hazardous air pollutants (HAPs), and Greenhouse Gases (GHG).

The proposed Station is located 0.4 miles west of the Mason Hill facility recently acquired by BRM. This facility is authorized under Permit No. R13-3287. The Mason Hill facility will be shut down upon commencement of operation of the Station.



WEST VIRGINIA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

**APPLICATION FOR NSR PERMIT
AND
TITLE V PERMIT REVISION
(OPTIONAL)**

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

- ☒ **CONSTRUCTION** ☐ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☐ **CLASS II ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

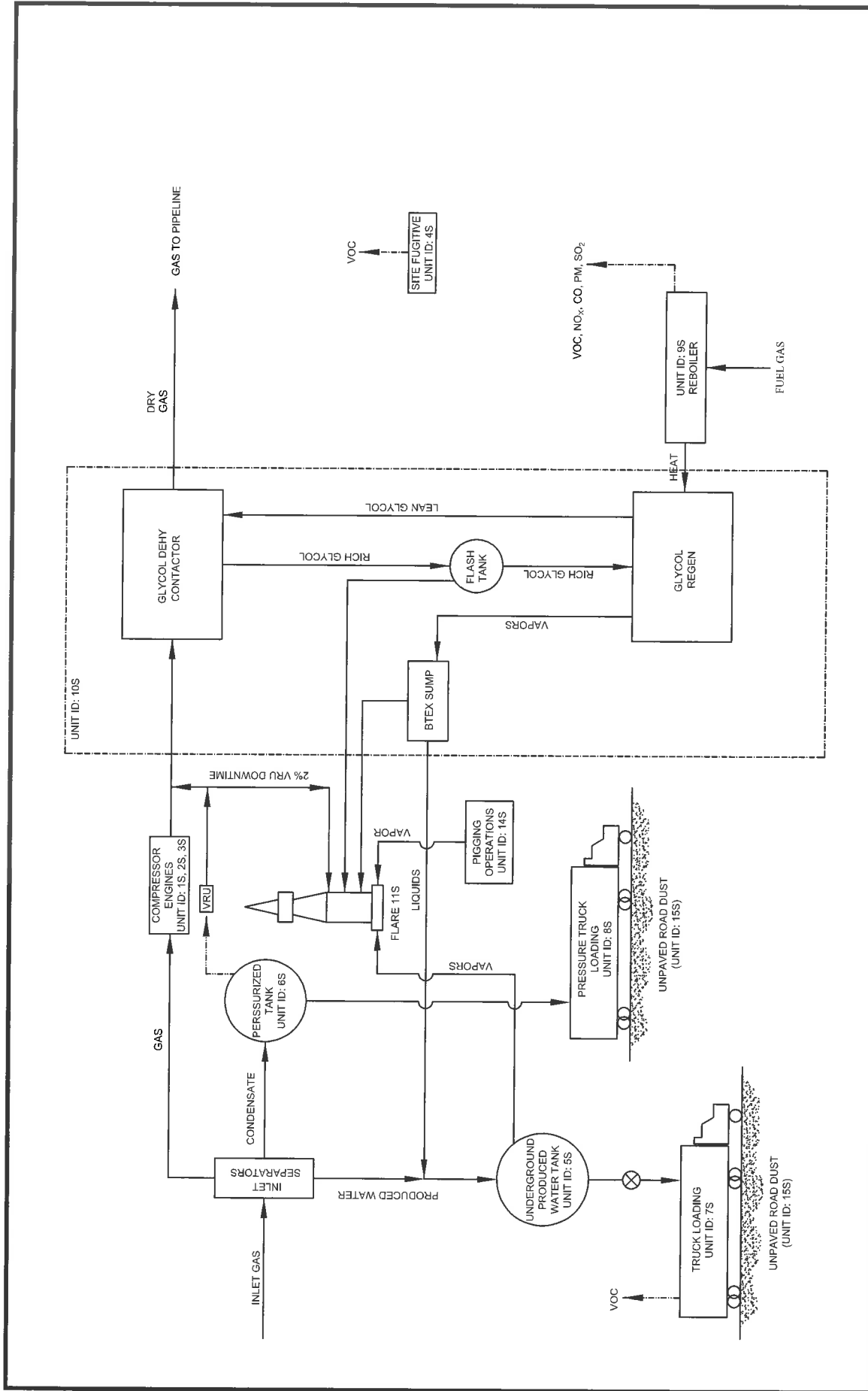
- ☐ **ADMINISTRATIVE AMENDMENT** ☐ **MINOR MODIFICATION**
☐ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant (as registered with the WV Secretary of State's Office): Blue Racer Midstream, LLC		2. Federal Employer ID No. (FEIN): 46-1520107	
3. Name of facility (if different from above): Marcellus Field Station No. 1		4. The applicant is the: <input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH	
5A. Applicant's mailing address: 5949 Sherry Lane, Suite 1300 Dallas, TX 75225		5B. Facility's present physical address: Latitude: 39.57547 Longitude: 80.71859	
6. West Virginia Business Registration. Is the applicant a resident of the State of West Virginia? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO – If YES, provide a copy of the Certificate of Incorporation/Organization/Limited Partnership (one page) including any name change amendments or other Business Registration Certificate as Attachment A . – If NO, provide a copy of the Certificate of Authority/Authority of L.L.C./Registration (one page) including any name change amendments or other Business Certificate as Attachment A .			
7. If applicant is a subsidiary corporation, please provide the name of parent corporation:			
8. Does the applicant own, lease, have an option to buy or otherwise have control of the <i>proposed site</i> ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – If YES, please explain: Applicant is the owner of the site. – If NO, you are not eligible for a permit for this source.			
9. Type of plant or facility (stationary source) to be constructed, modified, relocated, administratively updated or temporarily permitted (e.g., coal preparation plant, primary crusher, etc.): Compressor Station		10. North American Industry Classification System (NAICS) code for the facility: SIC Code: 1311 NAICS Code: 211111	
11A. DAQ Plant ID No. (for existing facilities only):		11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):	



DESIGNED BY: BRM	DETAILED BY: MCK	CHECKED BY: CL
FILE NAME: T:\Blue Racer Midstream\646-31\Marcellus\Fig\CAD		
DATE: 7/2016	PROJECT NO.: 725010646031	PLOT SCALE: NTS
DRAWING NO.: TEI-0000	REVISION: 0	FIGURE: 1-2

Attachment F SIMPLIFIED PROCESS FLOW DIAGRAM



Blue Racer Midstream, LLC
Marcellus Compressor Station
Rule 13 Air Permit Application

Apex TITAN, Inc.

12100 Ford Road, Suite 401
Dallas, TX 75234
Phone: (469) 365-1100
www.apexcos.com
A Subsidiary of Apex Companies, LLC



ATTACHMENT G PROCESS DESCRIPTION

The Station receives produced natural gas from natural gas wells located in Wetzel County and adjacent counties through a network of gathering pipelines. The inlet natural gas enters the Station and is routed to a three-phase inlet separator where produced water is removed and routed to an underground storage tank (Emission Unit ID 5S) and condensate is stored in a pressurized bullet tank (Emission Unit ID 6S). The underground produced water tank emissions are controlled by Flare (Unit ID 11S). Bullet tank emissions are controlled by a vapor recovery unit (VRU). When the VRU is offline for maintenance, condensate vapors are routed to the flare (Emission Unit ID 11S), with 98% destruction efficiency. The produced water and condensate collected in the tanks are periodically transported off-site via trucks (Emission Unit IDs 7S and 8S).

Natural gas is compressed by three compressor engines (Emission Unit IDs 1S, 2S, and 3S) and routed to the dehydration unit contactor (Emission Unit ID 10S) where water is removed from the gas by bringing glycol into contact with the gas. The water-saturated glycol (i.e. rich glycol) is routed to a flash tank where flash-off vapors are routed to the flare. The rich glycol is then routed to the associated glycol reboiler (Emission Unit ID 9S) where it is heated and water and other constituents are removed. The resulting lean glycol is circulated back into the dehydration process. Emissions resulting from the glycol regeneration process are routed to a BTEX sump where liquids fall out and are routed to a storage tank (Emission Unit ID 5S). The BTEX sump is being modelled similar to a condenser in GlyCalc, such that the ground temperature of 70 degrees Fahrenheit condenses water vapor and heavier components. The vapors from the BTEX sump are then routed to the flare. The dry gas resulting from the dehydration process is routed offsite via pipeline.

The Station also includes VOC emissions from piping and fugitive components (Emission Unit ID 4S), compressor blowdowns (Emission Unit ID 12S), engine starter vents (Emission Unit ID 13S), pigging operations (Emission Unit ID 14S), and unpaved road dust emissions (Emission Unit ID 15S).

During pigging operations, the pig trap is depressurized from operating pressure to flare line pressure, and the gas is routed to the flare for combustion. Any remaining gas at the pig trap is vented to the atmosphere.

Attachment N contains emission rate calculations for each emission source located at the Station.

Attachment I

Emission Units Table

(includes all emission units and air pollution control devices
that will be part of this permit application review, regardless of permitting status)

Emission Unit ID ¹	Emission Point ID ²	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type ³ and Date of Change	Control Device ⁴
1S	1E	Compressor Engine 1	2016	1950HP	New	1C
2S	2E	Compressor Engine 2	2016	1950HP	New	2C
3S	3E	Compressor Engine 3	2016	1950HP	New	3C
4S	4E	Site Fugitives	2016	N/A	New	N/A
5S	11E	Underground Produced Water Tank	2016	12,000 gallons	New	11S
6S	6E	Pressurized Bullet Tank	2016	N/A	New	N/A
7S	7E	Truck Loading	2016	N/A	New	N/A
8S	8E	Pressurized Truck Loading	2016	N/A	New	N/A
9S	9E	Glycol Reboiler 1	2016	3.0 mmBTU/hr	New	N/A
10S	11E	Glycol Dehydrator No. 1	2016	91MMSCFD	New	11S
11S	11E	Flare	2016	N/A	New	N/A
12S	12E	Compressor Blowdowns	2016	N/A	New	N/A
13S	13E	Engine Starter Vents	2016	N/A	New	N/A
14S	11E	Pigging Operations	2016	N/A	New	11S
15S	15E	Unpaved Road Dust Emissions	2016	N/A	New	N/A

¹ For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S,... or other appropriate designation.

² For Emission Points use the following numbering system: 1E, 2E, 3E, ... or other appropriate designation.

³ New, modification, removal

⁴ For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

4E	N/A	4S	Site Fugitives	N/A	N/A	C	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	1.29 -- -- -- (2)	5.67 0.26 18.07 451.89 (2)	1.29 -- -- -- (2)	5.67 0.26 18.07 451.89 (2)	Gas Gas Gas Gas Gas	EE	N/A
11E	Vertical	5S	Underground Produced Water Tank	N/A	N/A	C	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	0.05 -- -- -- (2)	0.01 0.002 0.05 1.14 (2)	0.05 -- -- -- (2)	0.01 0.002 0.05 1.14 (2)	Gas Gas Gas Gas Gas	EE	N/A
6E	Vertical	6S	Pressurized Bullet Tank	N/A	N/A	C	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	0.0004 -- -- -- (2)	0.00003 0.0004 0.0003 0.01 (2)	0.0004 -- -- -- (2)	0.00003 0.0004 0.0003 0.01 (2)	Gas Gas Gas Gas Gas	EE	N/A
7E	Vertical	7S	Truck Loading	N/A	N/A	<1 hour	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	86.08 -- -- -- (2)	0.27 0.07 2.03 50.81 (2)	86.08 -- -- -- (2)	0.27 0.07 2.03 50.81 (2)	Gas Gas Gas Gas Gas	EE	N/A
8E	Vertical	8S	Pressurized Truck Loading	N/A	N/A	<1 hour	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	0.01 -- -- -- (2)	0.0003 0.00006 0.002 0.05 (2)	0.01 -- -- -- (2)	0.0003 0.00006 0.002 0.05 (2)	Gas Gas Gas Gas Gas	EE	N/A
9E	Vertical	9S	Glycol Reboiler 1	N/A	N/A	C	N/A	NO _x CO VOC PM SO ₂ CO _{2e} (1) HAPs	0.29 0.25 0.02 0.02 0.002 -- (2)	1.29 1.08 0.07 0.10 0.009 1,538.65 (2)	0.29 0.25 0.02 0.02 0.002 -- (2)	1.29 1.08 0.07 0.10 0.009 1,538.65 (2)	Gas Gas Gas Gas Gas Gas Gas	EE	N/A
11E	Vertical	10S	Glycol Dehydrator No. 1	11S	N/A	C	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	1.08 -- -- -- (2)	4.74 6.25 5.63 147.07 (2)	1.08 -- -- -- (2)	4.74 6.25 5.63 147.07 (2)	Gas Gas Gas Gas Gas	EE	N/A

11E	Vertical	11S	Flare	N/A	N/A	C	N/A	NOx CO VOC PM SO ₂ CO _{2e} (1) HAPs	4.38 8.74 4.64 0.20 0.02 -- (2)	3.42 6.83 0.87 0.16 0.01 3,208.28 (2)	4.38 8.74 4.64 0.20 0.02 -- (2)	3.42 6.83 0.87 0.16 0.01 3,208.28 (2)	Gas Gas Gas Gas Gas Gas Gas	EE	N/A	
12E	Vertical	12S	Compressor Blowdowns	N/A	N/A	< 1 hour	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	25.93 -- -- -- (2)	2.02 0.09 7.08 177.08 (2)	25.93 -- -- -- (2)	2.02 0.09 7.08 177.08 (2)	Gas Gas Gas Gas Gas	EE	N/A	
13E	Vertical	13S	Engine Starter Vents	N/A	N/A	<1 hour	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	28.00 -- -- -- (2)	1.40 0.07 4.90 122.59 (2)	28.00 -- -- -- (2)	1.40 0.07 4.90 122.59 (2)	Gas Gas Gas Gas Gas	EE	N/A	
11E	N/A	14S	Pigging Operations	N/A	N/A	Varies	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	0.93 -- -- -- (2)	0.17 0.008 0.60 14.88 (2)	0.93 -- -- -- (2)	0.17 0.008 0.60 14.88 (2)	Gas Gas Gas Gas Gas	EE	N/A	
15E	N/A	15S	Unpaved Road Dust Emissions	N/A	N/A	Varies	N/A	PM PM ₁₀ PM _{2.5}	1.65 0.49 0.05	0.77 0.23 0.02	1.65 0.49 0.05	0.77 0.23 0.02	Gas Gas Gas	EE	N/A	
Notes:																

Notes:

- (1) Hourly emissions could not be quantified. CO_{2e} emissions include CO₂, CH₄, and N₂O, taking into account the Global Warming Potential of each.
- (2) Individual HAPs are provided in Attachment N.

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

¹ Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

² Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT www.epa.gov/ttn/tanks.html), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (<http://www.epa.gov/ttn/chief/>).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name	2. Tank Name Underground Produced Water Tank
3. Tank Equipment Identification No. (as assigned on <i>Equipment List Form</i>) 5S	4. Emission Point Identification No. (as assigned on <i>Equipment List Form</i>) 11E
5. Date of Commencement of Construction (for existing tanks) 2016	
6. Type of change <input checked="" type="checkbox"/> New Construction <input type="checkbox"/> New Stored Material <input type="checkbox"/> Other Tank Modification	
7. Description of Tank Modification (if applicable)	
7A. Does the tank have more than one mode of operation? (e.g. Is there more than one product stored in the tank?) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode).	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.):	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 12,000 gallon	
9A. Tank Internal Diameter (ft) 8	9B. Tank Internal Height (or Length) (ft) 32
10A. Maximum Liquid Height (ft) 8	10B. Average Liquid Height (ft) 4
11A. Maximum Vapor Space Height (ft) 7	11B. Average Vapor Space Height (ft) 4
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. 12,000 gallons	

13A. Maximum annual throughput (gal/yr) <div style="text-align: center;">84000</div>	13B. Maximum daily throughput (gal/day)
14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume) <div style="text-align: center;">10</div>	
15. Maximum tank fill rate (gal/min)	
16. Tank fill method <input checked="" type="checkbox"/> Submerged <input type="checkbox"/> Splash <input type="checkbox"/> Bottom Loading	
17. Complete 17A and 17B for Variable Vapor Space Tank Systems <input checked="" type="checkbox"/> Does Not Apply	
17A. Volume Expansion Capacity of System (gal)	17B. Number of transfers into system per year
18. Type of tank (check all that apply): <input checked="" type="checkbox"/> Fixed Roof ___ vertical x horizontal ___ flat roof ___ cone roof ___ dome roof ___ other (describe) <input type="checkbox"/> External Floating Roof ___ pontoon roof ___ double deck roof <input type="checkbox"/> Domed External (or Covered) Floating Roof <input type="checkbox"/> Internal Floating Roof ___ vertical column support ___ self-supporting <input type="checkbox"/> Variable Vapor Space ___ lifter roof ___ diaphragm <input type="checkbox"/> Pressurized ___ spherical ___ cylindrical <input checked="" type="checkbox"/> Underground <input type="checkbox"/> Other (describe)	

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)

19. Tank Shell Construction: <input type="checkbox"/> Riveted <input type="checkbox"/> Gunitite lined <input type="checkbox"/> Epoxy-coated rivets <input type="checkbox"/> Other (describe) Welded		
20A. Shell Color White	20B. Roof Color White	20C. Year Last Painted
21. Shell Condition (if metal and unlined): <input type="checkbox"/> No Rust <input type="checkbox"/> Light Rust <input type="checkbox"/> Dense Rust <input type="checkbox"/> Not applicable		
22A. Is the tank heated? <input type="checkbox"/> YES <input type="checkbox"/> NO		
22B. If YES, provide the operating temperature (°F)		
22C. If YES, please describe how heat is provided to tank.		
23. Operating Pressure Range (psig): to		
24. Complete the following section for Vertical Fixed Roof Tanks <input type="checkbox"/> Does Not Apply		
24A. For dome roof, provide roof radius (ft)		
24B. For cone roof, provide slope (ft/ft)		
25. Complete the following section for Floating Roof Tanks <input type="checkbox"/> Does Not Apply		
25A. Year Internal Floaters Installed:		
25B. Primary Seal Type: <input type="checkbox"/> Metallic (Mechanical) Shoe Seal <input type="checkbox"/> Liquid Mounted Resilient Seal (check one) <input type="checkbox"/> Vapor Mounted Resilient Seal <input type="checkbox"/> Other (describe):		
25C. Is the Floating Roof equipped with a Secondary Seal? <input type="checkbox"/> YES <input type="checkbox"/> NO		
25D. If YES, how is the secondary seal mounted? (check one) <input type="checkbox"/> Shoe <input type="checkbox"/> Rim <input type="checkbox"/> Other (describe):		
25E. Is the Floating Roof equipped with a weather shield? <input type="checkbox"/> YES <input type="checkbox"/> NO		

26. Complete the following section for Internal Floating Roof Tanks		<input checked="" type="checkbox"/> Does Not Apply
26A. Deck Type: <input type="checkbox"/> Bolted <input type="checkbox"/> Welded		
26B. For Bolted decks, provide deck construction:		
26C. Deck seam:		
<input type="checkbox"/> Continuous sheet construction 5 feet wide <input type="checkbox"/> Continuous sheet construction 6 feet wide <input type="checkbox"/> Continuous sheet construction 7 feet wide <input type="checkbox"/> Continuous sheet construction 5 × 7.5 feet wide <input type="checkbox"/> Continuous sheet construction 5 × 12 feet wide <input type="checkbox"/> Other (describe)		
26D. Deck seam length (ft)	26E. Area of deck (ft ²)	
For column supported tanks:	26G. Diameter of each column:	
26F. Number of columns:		

IV. SITE INFORMATION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based.
28. Daily Average Ambient Temperature (°F)
29. Annual Average Maximum Temperature (°F)
30. Annual Average Minimum Temperature (°F)
31. Average Wind Speed (miles/hr)
32. Annual Average Solar Insulation Factor (BTU/(ft ² ·day))
33. Atmospheric Pressure (psia)

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid:			
34A. Minimum (°F)	34B. Maximum (°F)		
35. Average operating pressure range of tank:			
35A. Minimum (psig)	35B. Maximum (psig)		
36A. Minimum Liquid Surface Temperature (°F)	36B. Corresponding Vapor Pressure (psia)		
37A. Average Liquid Surface Temperature (°F)	37B. Corresponding Vapor Pressure (psia)		
38A. Maximum Liquid Surface Temperature (°F)	38B. Corresponding Vapor Pressure (psia)		
39. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.			
39A. Material Name or Composition	Produced Water		
39B. CAS Number			
39C. Liquid Density (lb/gal)			
39D. Liquid Molecular Weight (lb/lb-mole)			
39E. Vapor Molecular Weight (lb/lb-mole)			

Maximum Vapor Pressure 39F. True (psia)			
39G. Reid (psia)			
Months Storage per Year 39H. From			
39I. To			

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): ☐ Does Not Apply

- ☐
- Condenser
- ¹

- ### Vacuum Setting

Pressure Setting

- ☐
- Inert Gas Blanket of

- ☐
- Liquid Absorption (scrubber)
- ¹

- ☐
- Rupture Disc (psig)

- ☒ Other¹ (describe): Flare (98% Destruction Efficiency).

¹ Complete appropriate Air Pollution Control Device Sheet.

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

[illegible]

¹ EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

☐ Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): 11S

<p>1. Name or type and model of proposed affected source:</p> <p>The flare will control VOC emissions from Dehy unit, underground produced water tank, VRU during downtime, and pigging operation blowdowns.</p>
<p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p>
<p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>N/A</p>
<p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>N/A</p>
<p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p> <p>Combustion of waste gas from Dehy unit, underground produced water tank, VRU during downtime, and pigging operation blowdowns.</p>

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

(FLARE SYSTEM)

Steam Injection

20. Will steam injection be used?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	21. Steam pressure Minimum Expected:	N/A	PSIG
22. Total Steam flow rate:	N/A	LB/hr	23. Temperature:	N/A	°F
24. Velocity	N/A	ft/sec	25. Number of jet streams	N/A	
26. Diameter of steam jets:	N/A	in	27. Design basis for steam injected:	LB steam/LB hydrocarbon	
28. How will steam flow be controlled if steam injection is used? N/A					

Characteristics of the Waste Gas Stream to be Burned

29.	Name	Quantity Grains of H ₂ S/100 ft ³	Quantity (LB/hr, ft ³ /hr, etc)	Source of Material
	See Attachment N			
30. Estimate total combustible to flare: See Attachment N LB/hr or ACF/hr (Maximum mass flow rate of waste gas) scfm				
31. Estimated total flow rate to flare including materials to be burned, carrier gases, auxiliary fuel, etc.: See Attachment N LB/hr or ACF/hr				
32. Give composition of carrier gases: See Attachment N				
33. Temperature of emission stream: °F Heating value of emission stream: BTU/ft ³ Mean molecular weight of emission stream: MW = lb/lb-mole		34. Identify and describe all auxiliary fuels to be burned. BTU/scf BTU/scf BTU/scf BTU/scf		
35. Temperature of flare gas: °F		36. Flare gas flow rate: scf/min		
37. Flare gas heat content: see attached BTU/ft ³		38. Flare gas exit velocity: scf/min		
39. Maximum rate during emergency for one major piece of equipment or process unit: scf/min				
40. Maximum rate during emergency for one major piece of equipment or process unit: BTU/min				
41. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):				
42. Describe the collection material disposal system:				
43. Have you included Flare Control Device in the Emissions Points Data Summary Sheet? Yes				

44. Proposed Monitoring, Recordkeeping, Reporting, and Testing

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING:

RECORDKEEPING:

REPORTING:

TESTING:

MONITORING:	Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.
RECORDKEEPING:	Please describe the proposed recordkeeping that will accompany the monitoring.
REPORTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.
TESTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.

45. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.

46. Manufacturer's Guaranteed Control Efficiency for each air pollutant.
98% or greater hydrocarbon destruction efficiency will be achieved.

47. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

TABLE N-1
SUMMARY OF PROPOSED ALLOWABLE EMISSION RATES
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC

Emission Unit ID	Emission Point ID	Description	VOC			NO _x			CO			PM			PM ₁₀			PM _{2.5}			SO ₂			CO ₂ e		
			Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)
1S	1E	Compressor Engine 1	3.22	14.10	2.15	9.41	5.80	25.42	0.15	0.64	0.15	0.64	0.15	0.64	0.15	0.64	0.01	0.04	--	--	--	--	--	7,508.93	--	7,508.93
2S	2E	Compressor Engine 2	3.22	14.10	2.15	9.41	5.80	25.42	0.15	0.64	0.15	0.64	0.15	0.64	0.15	0.64	0.01	0.04	--	--	--	--	--	7,508.93	--	7,508.93
3S	3E	Compressor Engine 3	3.22	14.10	2.15	9.41	5.80	25.42	0.15	0.64	0.15	0.64	0.15	0.64	0.15	0.64	0.01	0.04	--	--	--	--	--	7,508.93	--	7,508.93
4S	4F	Site Fugitives	1.29	5.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5S	11F	Underground Production Water Tank	0.05	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	451.89	--	451.89
6S	6E	Pressurized Bulb Tank	0.0004	0.00003	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.14	--	0.01
7S	7E	Truck Loading	86.08	0.27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	50.81	--	50.81
8S	8E	Pressurized Truck Loading	0.01	0.0003	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.05	--	0.05
9S	9E	Glycol Reboiler 1	0.02	0.07	0.29	1.29	0.25	1.08	0.02	0.10	0.02	0.10	0.02	0.10	0.02	0.10	0.002	0.009	--	--	--	--	--	1,558.65	--	1,558.65
10S	11E	Glycol Dehydrator No. 1	1.08	4.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	147.07	--	147.07
11S	11E	Flare	4.64	0.87	4.38	3.42	8.74	6.83	0.20	0.16	0.20	0.16	0.20	0.16	0.20	0.16	0.02	0.01	--	--	--	--	--	3,208.28	--	3,208.28
12S	12E	Compressor Blowdowns	25.93	2.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	177.08	--	177.08
13S	13E	Engine Shutin Vents	28.00	1.40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	122.59	--	122.59
14S	11E	Pigging Operations	0.93	0.17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14.88	--	14.88
15S	15E	Unpaved Road Dust Emissions	--	--	--	--	--	--	1.65	0.77	0.49	0.23	0.65	0.02	--	--	--	--	--	--	--	--	--	--	--	--
Totals:			157.70	57.51	11.12	32.96	26.40	84.18	2.31	2.95	1.15	2.40	0.71	2.20	0.05	0.14	--	--	--	--	--	--	--	20,230.25	--	20,230.25

TABLE N-2
SUMMARY OF POTENTIAL HAP EMISSION RATES
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC

Emissions Unit ID	Emission Point ID	Description	CH ₄ O			Acetaldehyde			Acrolein			Benzene			Toluene			Ethylbenzene			Xylene			N-Hexane			Other HAPs			Total HAPs		
			Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)		
1S	1E	Compressor Engine 1	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.003	0.01	0.02	0.07	0.02	0.07	0.02	0.07	0.02	0.08	0.44	1.94	0.0001			
2S	2E	Compressor Engine 2	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.003	0.01	0.02	0.07	0.02	0.07	0.02	0.07	0.02	0.08	0.44	1.94	0.0001			
3S	3E	Compressor Engine 3	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.003	0.01	0.02	0.07	0.02	0.07	0.02	0.07	0.02	0.08	0.44	1.94	0.0001			
4S	4E	Site Emissions	--	--	--	--	--	--	0.003	0.01	0.001	0.002	0.0003	0.0001	0.0003	0.0001	0.0003	0.0001	0.0003	0.001	0.006	--	--	--	--	--	0.02	0.07	0.02	0.07		
5S	11E	Underground Produced Water Tank	--	--	--	--	--	--	0.002	0.0002	0.0002	0.0003	0.0002	0.0003	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001		
6E	6E	Pressurized Boiler Tank	--	--	--	--	--	--	0.000001	0.000001	0.000002	0.000002	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001		
7S	7E	Truck Loading	--	--	--	--	--	--	0.31	0.001	0.45	0.001	0.03	0.001	0.03	0.001	0.18	0.001	0.22	0.001	--	--	--	--	--	--	1.19	0.04	0.04	0.04		
8S	8E	Pressurized Truck Loading	--	--	--	--	--	--	0.00003	0.000001	0.000005	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001		
9E	9E	Glycol Reboiler 1	0.0002	0.001	--	--	--	--	0.000006	0.00003	0.00001	0.00004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0001	0.000003	0.000003	0.000003	0.000003	
10S	11E	Glycol Dehydrator No. 1	--	--	--	--	--	--	0.02	0.07	0.03	0.13	0.001	0.006	0.01	0.06	0.03	0.13	--	--	--	--	--	--	--	0.99	0.39	0.39	0.39	0.39		
11S	11E	Flare	0.0001	0.0003	--	--	--	--	0.01	0.002	0.002	0.004	0.001	0.002	0.001	0.0002	0.005	0.02	0.000004	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001		
12S	12E	Compressor Blowdown	--	--	--	--	--	--	0.06	0.01	0.01	0.01	0.001	0.001	0.001	0.0005	0.28	0.02	--	--	--	--	--	--	--	0.37	0.03	0.03	0.03	0.03		
13S	13E	Engine Starter Vents	--	--	--	--	--	--	0.07	0.004	0.01	0.040	0.001	0.00003	0.00	0.0002	0.30	0.02	--	--	--	--	--	--	--	0.39	0.02	0.02	0.02	0.02		
14E	11E	Pigging Operations	--	--	--	--	--	--	0.002	0.0004	0.0004	0.0001	0.00003	0.000005	0.00002	0.00004	0.01	0.002	--	--	--	--	--	--	--	0.01	0.002	0.002	0.002	0.002		
15E	15E	Unpaved Road Dust Emissions	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Totals			8.59	2.58	0.37	1.61	0.23	0.99	0.50	0.18	0.52	0.21	0.04	0.01	0.21	0.09	0.37	0.48	0.23	0.47	0.63	0.23	0.47	0.63	0.23	0.47	0.63	0.23	0.47	0.63	0.23	

SUMMARY OF STORAGE TANK POTENTIAL TO EMIT
 RULE 13 AIR PERMIT APPLICATION
 MARCELLUS FIELD STATION NO. 1
 BLUE RACER MIDSTREAM, LLC

Emission Unit ID	Point ID	Tank Description	Working & Breathing Emissions ^a		Flash Emissions ^a		Annual Turnovers (turnovers/yr)	Minimum Turnover Time (hr/turnover)	Uncontrolled VOC Emissions		Control Efficiency (%)	Controlled VOC Emissions		Potential To Emit	
			Working Loss (lb/yr)	Breathing Loss (lb/yr)	Hourly Rate (lb/hr)	Annual Rate (T/yr)			Hourly (lb/hr)	Annual (T/yr)		Hourly (lb/hr)	Annual (T/yr)	Methane Annual (T/yr)	CO ₂ Annual (T/yr)
SS	11E	Underground Produced Water Tank	571.23	0.00	0.004	0.02	10	24	2.38	0.30	98%	0.05	0.01	0.05	0.002

^a Tank working and breathing emissions calculated using TANKS 4.09d program. Breathing emissions are zero since the tank is underground. Flash emissions from the storage tank are expected to be negligible. Hourly and annual emissions were calculated as shown below.

Example calculation of the hourly emissions for Emission Unit ID SS follows:

$$\text{VOC (lb/hr)} = (((\text{Breathing Loss, lb/yr}) / (8,760 \text{ hr/yr})) + ((\text{Working Loss, lb/yr}) / (\text{Number of turnovers/yr}))) + ((\text{Hourly Flash Emissions, lb/hr}) * (1 - \text{control efficiency}))$$

$$\text{VOC (lb/hr)} = (((0.00 \text{ lb/yr}) / (8,760 \text{ hr/yr})) + ((571.23 \text{ lb/yr}) / (10 \text{ turnovers/yr}))) + ((0.00 \text{ lb/hr}) * (1 - 0.98))$$

$$= \boxed{0.05 \text{ lb/hr}}$$

Example calculation of the annual emissions for Emission Unit ID SS follows:

$$\text{VOC (T/yr)} = (((\text{Working Loss, lb/yr}) / (2,000 \text{ lb/ton})) + ((\text{Flash Emissions, T/yr})) * (1 - \text{control efficiency}))$$

$$\text{VOC (T/yr)} = (((571.23 \text{ lb/yr}) / (2,000 \text{ lb/ton})) + (0.02 \text{ T/yr})) * (1 - 0.98)$$

$$= \boxed{0.01 \text{ T/yr}}$$

See following pages for working and breathing emission calculations.

HAP Emissions from storage tanks specified based on condensate vapor composition from Promax, as shown:

Component	SS	
	Hourly (lb/hr)	Annual (T/yr)
Benzene	0.0002	0.00002
Toluene	0.0002	0.00003
Ethylbenzene	0.0002	0.00002
Xylene	0.0001	0.00001
n-Hexane	0.0001	0.00002

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification
User Identification: MFS1 PW
City: Reader
State: West Virginia
Company: Blue Racer Midstream
Type of Tank: Horizontal Tank
Description: 12,000 gallon underground produced water storage tank.

Tank Dimensions
Shell Length (ft): 32.00
Diameter (ft): 8.00
Volume (gallons): 12,000.00
Turnovers: 7.00
Net Throughput(gal/yr): 64,000.00
Is Tank Heated (y/n): N
Is Tank Underground (y/n): Y

Paint Characteristics
Shell Color/Shade:
Shell Condition

Breather Vent Settings
Vacuum Settings (psig): -0.03
Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: Columbus, Ohio (Avg Atmospheric Pressure = 14.33 psia)

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TANKS 4.0 Report

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TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

MFS1 PW - Horizontal Tank
Reader, West Virginia

Mixture Component	Depth Liquid Level Temperature (deg F)				Liquid F/LB		Vapor F/LB		Liquid F/LB		Vapor F/LB		Notes for Liquid Pressure Calculations
	Max	Min	Avg	Std	Temp F	Wt	Temp F	Wt	Temp F	Wt	Temp F	Wt	
Gasoline (MT) 100	76	52.48	52.54	52.48	52.48	4.1375	4.1375	4.1375	4.1375	4.1375	4.1375	4.1375	Storage in West Virginia, 4.1375 M (Gallon)

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

MFS1 PW - Horizontal Tank
Reader, West Virginia

Annual Emission Calculations	
for Working Losses, Underground Tank	
Working Losses (lb)	671.2342
Vapor Molecular Weight (lb/lb-mole)	46.0952
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	4.3275
Annual Net Throughput (gal/yr.)	84,000.0000
Annual Turnover	7.0000
Turnover Factor	1.0000
Tank Diameter (ft)	8.0000
Working Loss Product Factor	1.0000
Total Losses (lb)	671.2342

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TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

MFS1 PW - Horizontal Tank
Reader, West Virginia

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Gasoline (RVP 10)	571.23	0.00	571.23

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TANKS 4.0 Report

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FLARE EMISSIONS SUMMARY
 RULE 13 AIR PERMIT APPLICATION
 MARCELLUS FIELD STATION NO. 1
 BLUE RACER MIDSTREAM, LLC

Emission Unit ID	Emission Point ID	Description	Pollutant	Pilot Gas		Waste Gas		Total	
				Potential to Emit ^a Hourly (lb/hr)	Annual (T/yr)	Potential to Emit ^b Hourly (lb/hr)	Annual (T/yr)	Potential to Emit Hourly (lb/hr)	Annual (T/yr)
11S	11E	Flare	CO	0.33	1.43	8.41	5.40	8.74	6.83
			NO _x	0.16	0.72	4.21	2.70	4.38	3.42
			PM	0.01	0.03	0.19	0.12	0.20	0.16
			SO ₂	0.001	0.003	0.02	0.01	0.02	0.01
			VOC	0.01	0.02	4.64	0.85	4.64	0.87

^a The Pilot Gas Potential to Emit emissions are from the Process Flare Pilot Gas Combustion Potential to Emit worksheet.

^b The Waste Gas Potential to Emit CO, NO_x, and SO₂ emissions are from the Process Flare Waste Gas Combustion Potential to Emit worksheet.

PROCESS FLARE PILOT GAS COMBUSTION POTENTIAL TO EMIT
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC

Emission Unit ID	Emission Point ID	Description	Fuel Gas Flow Rate (scf/hr)	Fuel Higher Heating Value (Btu/scf)	Annual Operating Hours (hr/yr)	Pollutant	Emission Factors ^a	Units	Potential to Emit	
									Hourly ^a (lb/hr)	Annual ^b (T/yr)
11S	11E	Flare (Pilot)	1,000	1,189	8,760	CO	0.2755	lb/MMBtu	0.33	1.43
						NO _x	0.1380	lb/MMBtu	0.16	0.72
						PM ^c	7.6	lb/MMscf	0.01	0.03
						SO ₂	4.0	ppm	0.001	0.003
						VOC	5.5	lb/MMscf	0.01	0.02
						CH ₃ O	0.075	lb/MMscf	0.0001	0.0003
						Benzene	0.0021	lb/MMscf	0.000002	0.00001
						Toluene	0.0034	lb/MMscf	0.000003	0.00001
						n-Hexane	1.8	lb/MMscf	0.002	0.01
						Other HAP	0.0019	lb/MMscf	0.000002	0.00001

^a Emission Factors for CO and NO_x are based upon the Draft TNRCC Guidance Document for Flares and Vapor Oxidizers (dated 10/00) for other high-Btu flares. An example calculation for hourly CO emissions for Emission Unit ID 11S follows:

$$\begin{aligned}\text{CO (lb/hr)} &= (\text{Fuel Flow Rate, scf/hr}) * (\text{Fuel Heating Value, Btu/scf}) * (\text{MM}/10^6) * (\text{Emission Factor, lb/MMBtu}) \\ \text{CO (lb/hr)} &= (1000 \text{ scf/hr}) * (1,189 \text{ Btu/scf}) * (\text{MM}/10^6) * (0.2755 \text{ lb/MMBtu}) \\ &= \boxed{0.33} \text{ lb/hr CO}\end{aligned}$$

SO₂ emission rates are estimated using a mass balance approach and the actual sulfur content of the gas. An example calculation for hourly SO₂ emissions for Emission Unit ID 11S follows:

$$\begin{aligned}\text{SO}_2 \text{ (lb/hr)} &= (\text{Fuel Flow Rate, scf/hr}) * (\text{MMscf}/10^6 \text{ scf}) * (\text{sulfur content, scf S/MMscf gas}) * (1 \text{ lb-mol}/379 \text{ scf}) * (32.06 \text{ lb S/lb-mol}) * (64.06 \text{ lb SO}_2/32.06 \text{ lb S}) \\ \text{SO}_2 \text{ (lb/hr)} &= (1000 \text{ scf/hr}) * (\text{MMscf}/10^6 \text{ scf}) * (4.0 \text{ scf S/MMscf gas}) * (1 \text{ lb-mol}/379 \text{ scf}) * (32.06 \text{ lb S/lb-mol}) * (64.06 \text{ lb SO}_2/32.06 \text{ lb S}) \\ &= \boxed{0.001} \text{ lb/hr SO}_2\end{aligned}$$

Emission Factors for VOC are based upon AP-42 Table 1.4-2 (dated 7/98). An example calculation for hourly VOC emissions for Emission Unit ID 11S follows:

$$\begin{aligned}\text{VOC (lb/hr)} &= (\text{Fuel Flow Rate, scf/hr}) * (\text{MM}/10^6) * (\text{Emission Factor, lb/MMscf}) \\ \text{VOC (lb/hr)} &= (1000 \text{ scf/hr}) * (\text{MM}/10^6) * (5.5 \text{ lb/MMscf}) \\ &= \boxed{0.01} \text{ lb/hr VOC}\end{aligned}$$

^b An example calculation for annual CO emissions for Emission Unit ID 11S follows:

$$\begin{aligned}\text{CO (T/yr)} &= (\text{Hourly Emissions, lb/hr}) * (\text{Annual Operating Hours, hr/yr}) * (1 \text{ T}/2,000 \text{ lb}) \\ \text{CO (T/yr)} &= (0.33 \text{ lb/hr}) * (8,760 \text{ hr/yr}) * (1 \text{ T}/2,000 \text{ lb}) \\ &= \boxed{1.43} \text{ T/yr CO}\end{aligned}$$

^c The process flares are smokeless per 40 CFR §60.18 requirements; therefore, PM emissions are negligible. However, PM emissions have been included to be conservative.

PROCESS FLARE WASTE GAS COMBUSTION POTENTIAL TO EMIT
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC

Emission Unit ID	Emission Point ID	Description	WG Flow Rate ^a (scf/hr)	WG Higher Heating Value (Btu/scf)	Flare Feed Rate		Pollutant	Emission Factors ^b	Units	Potential to Emit ^c	
					Hourly (MMBtu/hr)	Annual (MMBtu/yr)				Hourly (lb/hr)	Annual (T/yr)
11S	11E	Flare (Waste Gas Stream)	2,793.84	1,419.41	3.97	29,487.93	CO	0.2755	lb/MMBtu	1.09	4.06
6S							NO _x	0.1380	lb/MMBtu	0.55	2.03
10S							PM ^d	7.6	lb/MMscf	0.02	0.09
5S							SO ₂	4.0	ppm	0.002	0.01
14S	11E	Flare (Pigging)	22,359	1,188.08	26.58	9,700.92	CO	0.2755	lb/MMBtu	7.32	1.34
							NO _x	0.1380	lb/MMBtu	3.67	0.67
							PM ^d	7.6	lb/MMscf	0.17	0.03
							SO ₂	4.0	ppm	0.02	0.003
							VOC		Material Balance	4.64	0.85
							Benzene		Material Balance	0.01	0.002
							Toluene		Material Balance	0.002	0.0004
							Ethylbenzene		Material Balance	0.0001	0.00002
							Xylene		Material Balance	0.001	0.0002
							n-Hexane		Material Balance	0.05	0.01

^a The WG flow rate, heating value, and feed rates from the condensate tank and dehydration unit were determined in the Calculation of Flare Feed Rates. VOC emissions from waste gas are represented at the emission units that generated them.

^b Emission Factors for CO and NO_x are based upon the Draft TNRC Guidance Document for Flares and Vapor Oxidizers (dated 10/00) for other high-Btu flares. An example calculation for hourly CO emissions for Unit ID 11S follows:

$$\begin{aligned} \text{CO (lb/hr)} &= (\text{Flare Feed Rate, MMBtu/hr}) * (\text{Emission Factor, lb/MMBtu}) \\ \text{CO (lb/hr)} &= (3.97 \text{ MMBtu/hr}) * (0.2755 \text{ lb/MMBtu}) \\ &= 1.09 \text{ lb/hr CO} \end{aligned}$$

SO₂ emission rates are estimated using a mass balance approach and the actual sulfur content of the gas. An example calculation for hourly SO₂ emissions for Emission Unit ID 11S follows:

$$\begin{aligned} \text{SO}_2 \text{ (lb/hr)} &= (\text{Fuel Flow Rate, scf/hr}) * (\text{MMscf}/10^6 \text{ scf}) * (\text{sulfur content, scf S/MMscf gas}) * (1 \text{ lb-mol}/29 \text{ scf}) * (32.06 \text{ lb S/lb-mol}) * (64.06 \text{ lb SO}_2/32.06 \text{ lb S}) \\ \text{SO}_2 \text{ (lb/hr)} &= (2,794 \text{ scf/hr}) * (\text{MMscf}/10^6 \text{ scf}) * (4.0 \text{ scf S/MMscf gas}) * (1 \text{ lb-mol}/379 \text{ scf}) * (32.06 \text{ lb S/lb-mol}) * (64.06 \text{ lb SO}_2/32.06 \text{ lb S}) \\ &= 0.002 \text{ lb/hr SO}_2 \end{aligned}$$

^c An example calculation for annual CO emissions for Emission Unit ID 11S follows:

$$\begin{aligned} \text{CO (T/yr)} &= (\text{Flare Feed Rate, MMBtu/yr}) * (\text{Emission Factor, lb/MMBtu}) / (2,000 \text{ lb/T}) \\ \text{CO (T/yr)} &= (29,487.93 \text{ MMBtu/yr}) * (0.2755 \text{ lb/MMBtu}) / (2,000 \text{ lb/T}) \\ &= 4.06 \text{ T/yr CO} \end{aligned}$$

^d The process flare is smokeless per 40 CFR §60.18 requirements; therefore, PM emissions are negligible. However, PM emissions have been included to be conservative.

CALCULATION OF FLARE FEED RATES FROM STORAGE TANKS AND DEHYDRATION UNIT
 RULE 13-AIR PERMIT APPLICATION
 MARCELLUS FIELD STATION NO.1
 BLUE RACER MIDSTREAM, LLC

Uncontrolled Produced Water Storage Tank Emissions
 Hourly (lb/hr): 2.38
 Annual (T/yr): 0.30

Constituent	Heating Value ¹ (Btu/lb)	Molecular Weight (lb-mole)	Waste Gas Composition ² (wt %)	Uncontrolled Produced Water Storage Tank Emissions		VRU Downtime Flash Emissions ³ rounded		Uncontrolled Duty RTCC Vapor		Uncontrolled Duty Flash Tank Vapor		Flare Feed Rate		Volumetric Feed Rate ⁴		Controlled VRU Downtime Flash Emissions	
				Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (scfm)	Annual (scf/yr)	Hourly (lb/hr)	Annual (T/yr)
Nitrogen	—	28.013	0.270%	0.0744	0.02694	0.0066	0.0001	0.3210	1.4660	0.1470	0.6439	—	—	7.38	55,996.73	0.0006	0.0001
Carbon Dioxide	—	44.01	2.207%	0.5949	0.0755	0.0048	0.0004	0.6120	2.6806	0.8150	3.5697	—	—	17.54	109,493.40	0.0018	0.0004
Hydrogen Sulfide	—	34.0809	0.000%	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	—	—	0.00	0.00	0.0000	0.0000
Methane	23861	16.043	66.609%	17.9574	2.2802	0.1440	0.0127	45.0000	197.1060	19.3000	84.5340	1.5662	1354.5572	1,956.23	13,480,820.30	0.0029	0.0003
Ethane	21461	30.070	6.600%	0.9574	0.1200	0.0079	0.0006	3.8000	16.2000	1.6000	6.7200	0.1200	10.0000	14.50	103,500.00	0.0003	0.0001
Propane	21646	44.097	5.109%	1.5987	0.2030	0.0129	0.0011	8.4000	37.1862	9.6000	42.0480	0.4205	3439.0420	60.16	435,900.00	0.0003	0.0001
i-Butane	21242	58.123	0.644%	0.1735	0.0220	0.0014	0.0001	1.8700	8.1906	2.1300	9.3204	0.0887	745.2638	27.36	229,893.42	0.0000	0.0000
n-Butane	21293	58.123	1.425%	0.3842	0.0488	0.0031	0.0003	3.4500	17.2572	4.3000	18.8340	0.1837	1539.6688	56.33	473,629.35	0.0001	0.0000
i-Pentane	21025	72.15	0.276%	0.0744	0.0094	0.0006	0.0001	1.3500	5.9130	1.5000	6.5700	0.0615	525.8094	15.44	131,888.90	0.0000	0.0000
n-Pentane	21072	72.15	0.092%	0.0248	0.0031	0.0002	0.0000	1.3000	5.8602	1.4100	6.1798	0.0585	507.7579	14.65	127,197.92	0.0000	0.0000
n-Hexane	20928	86.177	0.023%	0.0088	0.0008	0.0001	0.0000	0.7920	3.4691	0.8870	3.8991	0.0311	271.1771	6.56	57,266.33	0.0000	0.0000
n-Heptane	20728	98.196	0.012%	0.0044	0.0004	0.0000	0.0000	0.7000	3.0800	0.7800	3.2400	0.0244	199.5000	5.00	42,900.00	0.0000	0.0000
o-Heptane	20928	86.177	0.138%	0.0372	0.0047	0.0003	0.0000	1.2100	5.2908	1.1800	5.2122	0.0310	440.1886	10.77	91,937.32	0.0000	0.0000
Benzene	20825	106.204	0.138%	0.0372	0.0047	0.0003	0.0000	1.5700	6.8286	1.4200	6.2196	0.0714	618.6252	13.03	112,907.56	0.0000	0.0000
toluene	18172	78.114	0.023%	0.0087	0.0011	0.0001	0.0000	0.7620	3.3376	0.4002	0.1761	0.0147	127.7398	3.95	34,273.64	0.0000	0.0000
ethylbenzene	18422	92.141	0.046%	0.0124	0.0016	0.0001	0.0000	1.3800	6.0444	0.0872	0.3819	0.0273	236.8302	6.12	53,138.94	0.0000	0.0000
m-xylene	18638	106.168	0.003%	0.0069	0.0001	0.0000	0.0000	0.0591	0.2689	0.0649	0.0213	0.0912	10.4380	0.23	2,010.74	0.0000	0.0000
p-xylene	18438	106.167	0.018%	0.0050	0.0006	0.0000	0.0000	0.6620	2.8688	0.0424	0.1857	0.0120	104.1048	2.33	20,255.03	0.0000	0.0000
c8+ heavies	21747	114.231	0.046%	0.0124	0.0016	0.0001	0.0000	0.0879	0.3820	7.3400	32.1492	0.1544	1,350.0398	24.81	216,956.54	0.0000	0.0000
Total VOC:				2.3840	0.3027	0.0192	0.0017									0.0004	0.0000
Total HAPs:				0.0331	0.0042	0.0003	0.0000									0.0000	0.0000
Totals:												3.97	29,487.93	2,793.84	19,960,675.30		

¹ Heating values taken from Perry's Chemical Engineers' Handbook, Table 2-207 (pg. 2-155)

² Waste gas composition taken from ProMax simulation for tanks and dehydration unit.

³ Volumetric feed rate for each constituent calculated using the Ideal Gas Law at standard conditions of 14.65 psia and 60 °F:

Sample annual volumetric feed rate calculation for Methane is as follows:

$(0.145 \text{ lb/hr}) \cdot (16.043 \text{ lb-mole}) \cdot (10.73 \text{ psia} \cdot \text{ft}^3 \cdot \text{lb-mole}^{-1} \cdot \text{R}^{-1}) \cdot (520 \cdot \text{deg. R}) \cdot (14.65 \text{ psia}) = 1956.2295 \text{ scf/yr}$

$(0.013 \text{ T/yr}) \cdot (2950 \text{ lb T}) \cdot (16.043 \text{ lb-mole}) \cdot (10.73 \text{ psia} \cdot \text{ft}^3 \cdot \text{lb-mole}^{-1} \cdot \text{R}^{-1}) \cdot (520 \cdot \text{deg. R}) \cdot (14.65 \text{ psia}) = 13,480,820.2985 \text{ scf/yr}$

CALCULATION OF GREENHOUSE GAS POTENTIAL TO EMIT FOR COMBUSTION SOURCES
 RULE 13 AIR PERMIT APPLICATION
 MARCELLUS FIELD STATION NO. 1
 BLUE RACER MIDSTREAM, LLC

Combustion-Related Green House Gas Emissions

Combustion Source ID	HP	Btu/lb-hr	MMBtu/hr	Annual Operating Hours	Fuel Usage MMBtu/yr	CO ₂ e ^a metric T/yr	CO ₂ e ^a short T/yr	GHG Mass ^a short T/yr
1S	1,950	7,508	14.64	8,760	128,251.66	6,812.06	7,508.93	7,501.34
2S	1,950	7,508	14.64	8,760	128,251.66	6,812.06	7,508.93	7,501.34
3S	1,950	7,508	14.64	8,760	128,251.66	6,812.06	7,508.93	7,501.34
9S	--	--	3.00	8,760	26,280	1,395.86	1,537.10	1,537.10
11S	--	--	6.26	8,760	54,853	2,913.48	3,211.53	3,208.28
SITE TOTAL			53.18	---	465,887.49	24,745.52	27,276.99	27,249.41

^aSample calculations:

Greenhouse Gas (GHG) Emission Factors are from 40 CFR 98, Subpart C Tables C-1 and C-2.

Carbon Dioxide Emission Factor (CO₂EF) =

Methane Emission Factor (CH₄EF) =

Nitrous Oxide Emission Factor (N₂OEF) =

An example calculation for carbon dioxide equivalent CO₂e in metric T/yr for Emission Unit ID 1S follows:

CO₂e (metric T/yr) = (0.001 metric T/kg)*[Fuel usage, MMBtu/yr]*[(CO₂EF + 25*CH₄EF + 298*N₂OEF), kg/MMBtu]

CO₂e (metric T/yr) = (0.001 metric T/kg) * (128,252 MMBtu/yr) * [(53.06 kg/MMBtu) + (25*0.001 kg/MMBtu) + (298*0.0001 kg/MMBtu)] = 6,812.06 metric T/yr

An example calculation for CO₂e in short T/yr for Emission Unit ID 1S follows:

CO₂e (short T/yr) = (0.001 metric T/kg) * (Fuel usage, MMBtu/yr) * [(CO₂EF + 25*CH₄EF + 298*N₂OEF), kg/MMBtu] * (2,204.6 lb/metric T) / (2,000 lb/short T)

CO₂e (short T/yr) = (0.001 metric T/kg) * (128,252 MMBtu/yr) * [(53.06 kg/MMBtu) + (25*0.001 kg/MMBtu) + (298*0.0001 kg/MMBtu)] * (2,204.6 lb/metric T) / (2,000 lb/short T) = 7,508.93 short T/yr

An example calculation for GHG Mass in short T/yr for Emission Unit ID 1S follows:

GHG Mass (short T/yr) = (0.001 metric T/kg) * (Fuel usage, MMBtu/yr) * (CO₂EF+CH₄EF+N₂OEF) * (2,204.6 lb/metric T) / (2,000 lb/short T)

GHG Mass (short T/yr) = (0.001 metric T/kg) * (128,252 MMBtu/yr) * [(53.06 kg/MMBtu) + (0.001 kg/MMBtu) + (0.0001 kg/MMBtu)] * (2,204.6 lb/metric T) / (2,000 lb/short T) = 7,501.34 short T/yr

BLAZE RACER MIDSTREAM, LLC

[illegible]

ATTACHMENT C
 RITE LAIR PERMIT APPLICATION
 MARSHALLS FIELD STATION NO. 1
 BLUE RAYER MIDSTREAM, LLC

Exclusion Type	Control Device	Permit Title	Applicable Regulations	Limitations/Standard	Monitoring	Testing	Recordkeeping	Reporting
DES	11.5	11E	<p> 1. Specific emissions are not regulated for this permit. 2. Specific emissions are not regulated for this permit. </p>	<p> Maximum wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Flaring device wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Flaring device wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Monthly wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Monthly wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>
DES	11.5	11E	<p> 1. Specific emissions are not regulated for this permit. 2. Specific emissions are not regulated for this permit. </p>	<p> Maximum wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Flaring device wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Flaring device wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Monthly wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Monthly wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>
DES	11.5	11E	<p> 1. Specific emissions are not regulated for this permit. 2. Specific emissions are not regulated for this permit. </p>	<p> Maximum wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Flaring device wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Flaring device wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Monthly wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Monthly wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>
DES	11.5	11E	<p> 1. Specific emissions are not regulated for this permit. 2. Specific emissions are not regulated for this permit. </p>	<p> Maximum wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Flaring device wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Flaring device wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Monthly wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>	<p> Monthly wet natural gas throughput: 1.1 MMcf/d per day (maximum wet natural gas throughput) The (dry)delivered wet gas emissions are certified for the flare. </p>

Williams, Jerry

From: Jill Thornberry <JThornberry@blueracermidstream.com>
Sent: Monday, October 17, 2016 4:47 PM
To: Williams, Jerry
Subject: RE: R13-3339 Pre-Draft Permit
Attachments: proposal blueracer F30AH4810R - Rev 01 - Page 2.pdf; 103-00118_PERM_13-3336 BRMcomments.doc

Jerry,

Again I apologize for not getting these draft permit comments back to you on Friday. Please see attached the comments/questions (incorporate by redline) on the draft permit for MFS#1. I have also attached the revised flare datasheet we discussed. Also, I would like to point out that the produced water storage tank (5S) is a 12,000 gal. underground storage tank that is controlled by the flare. Please feel free to call me with questions. I appreciate the opportunity to review this draft permit and would appreciate the opportunity to review it again prior to it being finalized.

Thanks,
Jill

Jill Thornberry
Sr. Environmental Specialist

Blue Racer Midstream, LLC
553 Wheeling Avenue
Cambridge, OH 43725
740.421.9255 x119 – office
740.255.4800 – cell
jthornberry@blueracermidstream.com



From: Williams, Jerry [mailto:Jerry.Williams@wv.gov]
Sent: Friday, October 07, 2016 2:13 PM
To: Jill Thornberry
Subject: R13-3339 Pre-Draft Permit

Jill,

Please review the attached pre-draft permit for Marcellus Field No. 1 station and respond with comments and information on the flare MDHI by October 14.

Thanks
Jerry

ID # 103-00118
Reg R13-3336
Company BLUE RACER
Facility MF No 1 Initials JW

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Design Data Sheet

Process Design Conditions

Waste Flare Stream	Flow Rate (MMSCFD)	Flow Rate (Lb/hr)	Molecular Weight	Lower Heating Value (Btu/SCF)	Inlet Pressure (psig)	Temp. (F)
LP (BTEX / Slop Tank)	0.187	412	20.1	292	<0.1	amb
HP (Compressor SD)	4.26	9187	19.66	1083	5-10	amb
Maximum Design Heat Input (rev 1)	5 MMSCFD of 1083 Btu/scf flare gas. 225 MMBtu/hr heat release.					

Utilities

Pilot Gas (per pilot)	78 scfh at 5 psig. Clean, dry natural gas.
Plant Air	No Plant Air Required
Electricity	120V / 1 Phase / 10 Amps is required to operate pilot ignition system
Blowers	Electric: 480V / 3 Phase / 60Hz Blower Size:7.5 HP

Mechanical

Design Wind Speed	120 mph ASCE 7-10
Site Conditions	Temp: 0 to 120°F Elevation: 14.0 Psia
Corrosion Allowance	1/16" (standard)
Electrical Area	Non-classified area
Control Panel Type	Nema 4X (Corrosion resistance fiberglass reinforced plastic (FRP))
Blower Motor	TEFC, Premium duty suitable for VFD

Emission & Performance Guarantees

Destruction	98% or greater hydrocarbon destruction efficiency will be achieved
Stability	Flare will be stable over the entire operating range
Smokeless Rate	100% Smokeless
Max Radiation	Less than 500 Btu/hr/SF at normal & 1500 Btu/hr at max flow rates
Tip Velocity	Meets EPA regulations over full operating range

Flare Construction

Component	Dimension	Material	Conn. @ Joints	Connection Type	Connection Elevation
Flare Stack	30' H x 16" base	A-36/A53B/ A106B/A500	Full Pen. Buttweld	----	----
LP Gas Riser	4" with 16" Knockout drum in base	A53B	Full Pen Buttweld	6" 150# RF	6'
HP Gas Riser	8". Line slopes back to client knockout.	A53B	Full Pen Buttweld	8" 150# RF	7'
Flare Tip Ø	12"	304SS	Full Pen.	integral	---
Pilots	Hero HES	Stainless Steel	NPT / SW	---	flare tip
Pilot Tubing Ø	3/8"	SS tubing or SS flexhose	Swagelok	NPT at regulator	2.5'
Pilot Conduit	---	rigid conduit or flexible SO cord	NPT	NPT	stack base

Williams, Jerry

From: Jill Thornberry <JThornberry@blueracermidstream.com>
Sent: Friday, September 23, 2016 9:21 AM
To: Williams, Jerry
Cc: Sean Wilson
Subject: RE: WV DAQ Permit Application Incomplete for Blue Racer Midstream LLC - Marcellus Field Station No. 1
Attachments: MFS1 Revision Pages 9.22.2016.pdf

Mr. Williams,

I wanted to follow-up with you regarding our phone conversation earlier this week. You indicated that the engines at MFS#1 need to be permitted at the emission factor indicated on the manufacturer specification sheet. Since Caterpillar has indicated that this model engine will meet a NOx emission factor is 0.5 g/hp-hr, we have updated the engine emissions accordingly. Please find attached those updated engine emission calculations as well as the other impacted forms and calculations.

Also, with regard to the flare, the flare has not yet been purchased but the design specification sheet I supplied you earlier this week is the design basis for the vendors. The Blue Racer engineering group is still working on determining the flare vendor for this project. We have permitted the flare at what has been determined to be the max rate. Once the engineering group has settled on the flare vendor I will supply you with the associated equipment specific spec sheet.

Please feel free to call me if you should have any questions.

Thanks,
Jill

Jill Thornberry
Sr. Environmental Specialist

Blue Racer Midstream, LLC
553 Wheeling Avenue
Cambridge, OH 43725
740.421.9255 x119 – office
740.255.4800 – cell
jthornberry@blueracermidstream.com



ID # 103-00118
Reg R13-3336
Company BLUE RACER
Facility MF No. 1 Initials JW

NON-CONFIDENTIAL

From: Jill Thornberry
Sent: Tuesday, September 20, 2016 1:30 PM
To: Williams, Jerry
Cc: Sean Wilson; 'Beverly.D.Mckeone@wv.gov'; Daniel Wentworth
Subject: RE: WV DAQ Permit Application Incomplete for Blue Racer Midstream LLC - Marcellus Field Station No. 1

Mr. Williams,

Blue Racer is pleased to provide responses to the items outlined in your email dated 9/6/2016 regarding the MFS#1 permit application. For ease of readability, I have incorporated the responses directly into your original email message. Please contact me with any further questions regarding this permit application.

Thank you,
Jill Thornberry

Jill Thornberry
Sr. Environmental Specialist

Blue Racer Midstream, LLC
553 Wheeling Avenue
Cambridge, OH 43725
740.421.9255 x119 – office
740.255.4800 – cell
jthornberry@blueracermidstream.com



From: Sean Wilson
Sent: Tuesday, September 06, 2016 3:27 PM
To: Jill Thornberry

Begin forwarded message:

From: "Williams, Jerry" <Jerry.Williams@wv.gov>
To: "Daniel Wentworth" <Daniel@caimanenergy.com>, "Sean Wilson" <SWilson@caimanenergy.com>
Cc: "McKeone, Beverly D" <Beverly.D.Mckeone@wv.gov>
Subject: WV DAQ Permit Application Incomplete for Blue Racer Midstream LLC - Marcellus Field Station No. 1

RE: Application Status: Incomplete
Blue Racer Midstream LLC - Marcellus Field Station No. 1
Permit Application No. R13-3336
Plant ID No. 103-00118

Mr. Wentworth,

Your application for a construction permit for a natural gas compressor station was received by this Division on August 17, 2016 and assigned to the writer for review. Upon initial review of said application, it has been determined that the application as submitted is incomplete based on the following items:

1. Class I legal advertisement contained the wrong telephone extension. Extension 1250 must be used. Furthermore, it must be stated that a "construction" permit was applied for. Please submit the affidavit of publication upon receipt.

Blue Racer response: On September 9, 2016 Apex TITAN, Inc., on behalf of Blue Racer, submitted the Class I legal advertisement original affidavit to you. Please note that the Class I

legal advertisement contained the correct telephone number extension of 1250 and stated that a construction permit being applied for.

2. Please provide the maximum design heat input (MMBTU/hr) for flare 11S.

Blue Racer response: Please see attached flare specification sheet that includes the maximum design heat input for the flare (11S).

3. 40CFR60 Subpart JJJJ has a regulatory allowable of 0.7 g/hp-hr for VOC emissions for engines 1S-3S. The oxidation catalyst spec sheet shows an allowable of 0.75 g/hp-hr. Please provide an explanation on how these engines will meet the rule.

Blue Racer response: VOC emission calculations from the compressor engines (1S-3S) are based on a 0.7 g/hp-hr VOC emission factor, and 0.05 g/hp-hr formaldehyde emission factor. Since the VOC emission factor specified in NSPS JJJJ does not include formaldehyde, BRM elected to add the formaldehyde emissions to the VOC emission factor to account for total VOC emissions from each compressor engine. The vendor guarantee of 0.75 g/hp-hr VOC breaks down into 0.7 g/hp-hr VOC and 0.05 g/hp-hr formaldehyde.

4. Utilization of a 10% safety factor on engines 1S-3S is not allowed. The PTE of these engines are the values represented by the manufacturer.

Blue Racer response: Please find attached updated engine emission calculations, safety factor has been removed.

5. Utilization of a 17% safety factor on the glycol dehydration reboiler 9S is not allowed.

Blue Racer response: Please find attached updated reboiler calculations. In addition, the heater fuel consumption rate has been increased to 3.0 MMBTU/hr to match equipment allocated for this facility.

6. Please use EPA Tanks 4.09 to calculate the working and breathing losses for tank 5S. Please provide ProMax information for flashing losses for this tank as well.

Blue Racer response: Please find attached updated storage tank calculations, based on the attached TANKS 4.09d output file. Flashing losses were determined using Promax software, and a copy of the output report can be found on page N-42 of the application. Promax stream 16 represents the flash losses from the storage tank.

7. Please explain the differences in molecular weights for truck loading 7S and 8S.

Blue Racer response: Truck loading 7S represents truck loadout from the produced water tank, and the liquid properties were taken from the storage tank calculations. The vapor molecular weight used in truck loading 7S is based on AP-42 data for RVP10 gasoline, to be conservative. Truck loading 8S represents truck loadout from the pressurized bullet tank, and the vapor molecular weight was taken as the molecular weight of the flash stream from the pressurized bullet tank (labelled as "VRU downtime to flare" on page N-43 of the application).

8. Please provide the particulate matter and HAP emissions for flare 11S.

Blue Racer response: Please find attached revised flare calculations with PM and HAP emissions included.

9. Please provide the bullet tank 6S operating pressure and size. Please provide a 40CFR60 Subpart Kb regulatory analysis.

Blue Racer response: Bullet tank capacity (6S) is 30,000 gal and the operating pressure will be greater than 30 psi, as required by NSPS Kb. Regulatory Analysis for NSPS Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, is not applicable to the produced water storage tank (Unit ID 5S) since its storage capacity is less than 1,589.874 m³ and it stores liquids prior to custody transfer. This subpart is not applicable to the pressurized bullet tank (Unit ID 6S) since the tank is designed to operate with a pressure in excess of 204.9 kPa and without any emissions to the atmosphere.

10. Please provide the loading throughput for the pressurized truck loading 8S.

Blue Racer response: Pressurized truck loading emissions were calculated assuming a maximum annual throughput of 448,021 gallons.

Please update and resubmit any forms that are affected as a result of the aforementioned incomplete items.

Please address the above deficiencies in writing within fifteen (15) days of the receipt of this email. Application review will not commence until the application has been deemed to be technically complete. Failure to respond to this request in a timely manner may result in the denial of the application.

Should you have any questions, please contact Jerry Williams at (304) 926-0499 ext. 1223 or reply to this email.

Jerry Williams, P.E.
Engineer
WVDEP – Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
(304) 926-0499 ext. 1223
jerry.williams@wv.gov



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[Log](#)

Low (90): Pass

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Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data															
Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type ¹	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS ³ (Speciate VOCs & HAPs)	Maximum Potential Uncontrolled Emissions ⁴		Maximum Potential Controlled Emissions ⁵		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used ⁶	Emission Concentration ⁷ (ppmv or mg/m ⁴)
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
1E	Vertical	1S	Compressor Engine 1	1C	Oxidation Catalyst	C	N/A	NO _x	2.15	9.41	2.15	9.41	Gas	EE	N/A
								CO	5.80	25.42	5.80	25.42	Gas		
								VOC	3.22	14.10	3.22	14.10	Gas		
								PM	0.15	0.64	0.15	0.64	Gas		
								SO ₂	0.01	0.04	0.01	0.04	Gas		
								CO _{2e} (1)	--	7,508.93	--	7,508.93	Gas		
								HAPs	(2)	(2)	(2)	(2)	Gas		
2E	Vertical	2S	Compressor Engine 2	2C	Oxidation Catalyst	C	N/A	NO _x	2.15	9.41	2.15	9.41	Gas	EE	N/A
								CO	5.80	25.42	5.80	25.42	Gas		
								VOC	3.22	14.10	3.22	14.10	Gas		
								PM	0.15	0.64	0.15	0.64	Gas		
								SO ₂	0.01	0.04	0.01	0.04	Gas		
								CO _{2e} (1)	--	7,508.93	--	7,508.93	Gas		
								HAPs	(2)	(2)	(2)	(2)	Gas		
3E	Vertical	3S	Compressor Engine 3	3C	Oxidation Catalyst	C	N/A	NO _x	2.15	9.41	2.15	9.41	Gas	EE	N/A
								CO	5.80	25.42	5.80	25.42	Gas		
								VOC	3.22	14.10	3.22	14.10	Gas		
								PM	0.15	0.64	0.15	0.64	Gas		
								SO ₂	0.01	0.04	0.01	0.04	Gas		
								CO _{2e} (1)	--	7,508.93	--	7,508.93	Gas		
								HAPs	(2)	(2)	(2)	(2)	Gas		

4E	N/A	4S	Site Fugitives	N/A	N/A	C	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	1.29 -- -- -- (2)	5.67 0.26 18.07 451.89 (2)	1.29 -- -- -- (2)	5.67 0.26 18.07 451.89 (2)	Gas Gas Gas Gas Gas	EE	N/A
5E	Vertical	5S	Produced Water Tank	N/A	N/A	C	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	2.58 -- -- -- (2)	0.59 0.15 4.47 111.90 (2)	2.58 -- -- -- (2)	0.59 0.15 4.47 111.90 (2)	Gas Gas Gas Gas Gas	EE	N/A
6E	Vertical	6S	Pressurized Bullet Tank	N/A	VRU to Flare	C	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	0.0004 -- -- -- (2)	0.00003 0.0004 0.0003 0.01 (2)	0.0004 -- -- -- (2)	0.00003 0.0004 0.0003 0.01 (2)	Gas Gas Gas Gas Gas	EE	N/A
7E	Vertical	7S	Truck Loading	N/A	N/A	<1 hour	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	86.08 -- -- -- (2)	0.27 0.07 2.03 50.81 (2)	86.08 -- -- -- (2)	0.27 0.07 2.03 50.81 (2)	Gas Gas Gas Gas Gas	EE	N/A
8E	Vertical	8S	Pressurized Truck Loading	N/A	N/A	<1 hour	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	0.01 -- -- -- (2)	0.0003 0.00006 0.002 0.05 (2)	0.01 -- -- -- (2)	0.0003 0.00006 0.002 0.05 (2)	Gas Gas Gas Gas Gas	EE	N/A
9E	Vertical	9S	Glycol Reboiler 1	N/A	N/A	C	N/A	NO _x CO VOC PM SO ₂ CO _{2e} (1) HAPs	0.29 0.25 0.02 0.02 0.002 -- (2)	1.29 1.08 0.07 0.10 0.009 1,538.65 (2)	0.29 0.25 0.02 0.02 0.002 -- (2)	1.29 1.08 0.07 0.10 0.009 1,538.65 (2)	Gas Gas Gas Gas Gas Gas Gas	EE	N/A
10E	Vertical	10S	Glycol Dehydrator No. 1	11S	N/A	C	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	1.08 -- -- -- (2)	4.74 6.25 5.63 147.07 (2)	1.08 -- -- -- (2)	4.74 6.25 5.63 147.07 (2)	Gas Gas Gas Gas Gas	EE	N/A

11E	Vertical	11S	Flare	N/A	N/A	C	N/A	NOx CO VOC PM SO ₂ CO _{2e} (1) HAPs	4.29 8.57 4.64 0.19 0.01 -- (2)	3.41 6.81 0.87 0.14 0.05 2,894.55 (2)	4.29 8.57 4.64 0.19 0.01 -- (2)	3.41 6.81 0.87 0.14 0.05 2,894.55 (2)	Gas Gas Gas Gas Gas Gas Gas	EE	N/A	
12E	Vertical	12S	Compressor Blowdowns	N/A	N/A	< 1 hour	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	25.93 -- -- -- (2)	2.02 0.09 7.08 177.08 (2)	25.93 -- -- -- (2)	2.02 0.09 7.08 177.08 (2)	Gas Gas Gas Gas Gas	EE	N/A	
13E	Vertical	13S	Engine Starter Vents	N/A	N/A	< 1 hour	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	28.00 -- -- -- (2)	1.40 0.07 4.90 122.59 (2)	28.00 -- -- -- (2)	1.40 0.07 4.90 122.59 (2)	Gas Gas Gas Gas Gas	EE	N/A	
11E	N/A	14S	Pigging Operations	N/A	N/A	Varies	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	0.93 -- -- -- (2)	0.17 0.008 0.60 14.88 (2)	0.93 -- -- -- (2)	0.17 0.008 0.60 14.88 (2)	Gas Gas Gas Gas Gas	EE	N/A	
15E	N/A	15S	Unpaved Road Dust Emissions	N/A	N/A	Varies	N/A	PM PM ₁₀ PM _{2.5}	1.65 0.49 0.05	0.77 0.23 0.02	1.65 0.49 0.05	0.77 0.23 0.02	Gas Gas Gas	EE	N/A	

Notes:

- (1) Hourly emissions could not be quantified. CO_{2e} emissions include CO₂, CH₄, and N₂O, taking into account the Global Warming Potential of each.
- (2) Individual HAPs are provided in Attachment N.

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

¹ Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

² Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

- 3 List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. **DO NOT LIST** H₂, H₂O, N₂, O₂, and Noble Gases.
- 4 Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- 5 Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- 6 Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).
- 7 Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m³) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO₂, use units of ppmv (See 45CSR10).

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data								
Emission Point ID No. <i>(Must match Emission Units Table)</i>	Inner Diameter (ft.)	Exit Gas		Emission Point Elevation (ft)			UTM Coordinates (km)	
		Temp. (°F)	Volumetric Flow ¹ (acfm) <i>at operating conditions</i>	Velocity (fps)	Ground Level <i>(Height above mean sea level)</i>	Stack Height ² <i>(Release height of emissions above ground level)</i>	Northing	Easting
Facility Coordinates								
1E	1.0	826	12097	N/A	1100 ft	20 ft	4,380.678	524,169
2E	1.0	826	12097	N/A	1100 ft	20 ft	4,380.678	524,169
3E	1.0	826	12097	N/A	1100 ft	20 ft	4,380.678	524,169
4E	N/A	N/A	N/A	N/A	1100 ft	N/A	4,380.678	524,169
5E	N/A	N/A	N/A	N/A	1100 ft	N/A	4,380.678	524,169
6E	N/A	N/A	N/A	N/A	1100 ft	N/A	4,380.678	524,169
7E	N/A	N/A	N/A	N/A	1100 ft	N/A	4,380.678	524,169
8E	N/A	N/A	N/A	N/A	1100 ft	N/A	4,380.678	524,169
9E	1.0	N/A	N/A	N/A	1100 ft	20 ft	4,380.678	524,169
11E	1.0	N/A	N/A	N/A	1100 ft	20 ft	4,380.678	524,169
12E	1.0	N/A	N/A	N/A	1100 ft	20 ft	4,380.678	524,169
13E	1.0	N/A	N/A	N/A	1100 ft	20 ft	4,380.678	524,169
15E	N/A	N/A	N/A	N/A	1100 ft	N/A	4,380.678	524,169

¹ Give at operating conditions. Include inerts. ² Release height of emissions above ground level.

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): 1S, 2S, 3S

<p>1. Name or type and model of proposed affected source:</p> <p>Natural gas fired compressor engine.</p>
<p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p>
<p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>Natural Gas - 14,961.1 scf/hr</p>
<p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>N/A</p>
<p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p> <p>N/A</p>

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@	°F and	psia
a. NO _x	N/A lb/hr	grains/ACF
b. SO ₂	N/A lb/hr	grains/ACF
c. CO	N/A lb/hr	grains/ACF
d. PM ₁₀	N/A lb/hr	grains/ACF
e. Hydrocarbons	N/A lb/hr	grains/ACF
f. VOCs	N/A lb/hr	grains/ACF
g. Pb	N/A lb/hr	grains/ACF
h. Specify other(s)	lb/hr	grains/ACF
	lb/hr	grains/ACF
	lb/hr	grains/ACF
	lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING

The unit is subject to the requirements of NSPS Subpart JJJJ.

RECORDKEEPING

The unit is subject to the requirements of NSPS Subpart JJJJ.

REPORTING

The unit is subject to the requirements of NSPS Subpart JJJJ.

TESTING

The unit is subject to the requirements of NSPS Subpart JJJJ.

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

N/A

TABLE N-1
SUMMARY OF PROPOSED ALLOWABLE EMISSION RATES
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC

Emission Unit ID	Emission Point ID	Description	VOC			NO _x			CO			PM			PM ₁₀			PM _{2.5}			SO ₂			CO ₂ e		
			Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)
1S	1E	Compressor Engine 1	3.22	14.10	2.15	9.41	5.80	25.42	0.15	0.64	0.15	0.64	0.15	0.64	0.15	0.64	0.01	0.04	--	--	--	--	7,508.95	--	7,508.95	
2S	2E	Compressor Engine 2	3.22	14.10	2.15	9.41	5.80	25.42	0.15	0.64	0.15	0.64	0.15	0.64	0.15	0.64	0.01	0.04	--	--	--	--	7,508.95	--	7,508.95	
3S	3E	Compressor Engine 3	3.22	14.10	2.15	9.41	5.80	25.42	0.15	0.64	0.15	0.64	0.15	0.64	0.15	0.64	0.01	0.04	--	--	--	--	7,508.93	--	7,508.93	
4S	4E	Site Fugitives	1.29	5.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	451.89	--	451.89	
5S	5E	Produced Water Tank	2.58	0.59	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	111.90	--	111.90	
6E	6E	Pressurized Bullet Tank	0.0004	0.0003	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	--	0.01	
7S	7E	Truck Loading	86.08	0.27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	50.81	--	50.81	
8S	8E	Pressurized Truck Loading	0.01	0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.05	--	0.05	
9S	9E	Glycol Reboiler 1	0.02	0.07	0.29	1.29	0.25	1.08	0.02	0.10	0.02	0.10	0.02	0.10	0.02	0.10	0.002	0.009	--	--	--	--	1,338.65	--	1,338.65	
10S	10E	Glycol Dehydrator No. 1	1.08	4.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	147.07	--	147.07	
11S	11E	Flare	4.64	0.87	4.29	3.41	8.57	6.81	0.19	0.14	0.19	0.14	0.19	0.14	0.19	0.14	0.01	0.04	--	--	--	--	2,894.55	--	2,894.55	
12E	12S	Compressor Blowdowns	25.93	2.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	177.08	--	177.08	
13E	13S	Engine Starter Vents	28.00	1.40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	122.59	--	122.59	
14S	14E	Pigging Operations	0.93	0.17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14.88	--	14.88	
15S	15E	Unpaved Road Dust Emissions	--	--	--	--	--	--	1.65	0.77	6.49	0.23	0.05	0.02	--	--	--	--	--	--	--	--	--	--	--	
Totals:			160.23	58.10	11.04	32.94	26.23	84.15	2.31	2.93	1.14	2.39	0.70	2.18	0.04	0.17	--	--	--	--	--	--	28,056.28	--	28,056.28	

TABLE N-2
SUMMARY OF POTENTIAL HAP EMISSION RATES
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC

Emissions Unit ID	Emission Point ID	Description	CH ₄ O			Acetaldehyde			Acrolein			Benzene			Toluene			Ethylbenzene			Xylene			N-Hexane			Other HAPs			Total HAPs			
			Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)			
1S	1E	Compressor Engine 1	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.003	0.01	0.02	0.07	0.02	0.08	0.04	0.44	0.44	1.94	1.94	1.94			
2S	2E	Compressor Engine 2	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.003	0.01	0.02	0.07	0.02	0.08	0.04	0.44	0.44	1.94	1.94	1.94			
3S	3E	Compressor Engine 3	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.003	0.01	0.02	0.07	0.02	0.08	0.04	0.44	0.44	1.94	1.94	1.94			
4S	4E	Site Fugitives	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.003	0.01	0.001	0.002	0.01	0.006	0.01	0.02	0.07	0.02	0.07	0.02	0.07	0.02	0.07		
5S	5E	Produced Water Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.003	0.01	0.001	0.002	0.01	0.006	0.01	0.02	0.07	0.02	0.07	0.02	0.07	0.02	0.07		
6S	6E	Pressurized Boiler Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000001	0.000001	0.000002	0.000002	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001		
7S	7E	Truck Loading	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.31	0.001	0.45	0.001	0.03	0.001	0.18	0.006	0.22	0.001	0.119	0.004	0.004	0.004	0.004		
8S	8E	Pressurized Tank Loading	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000003	0.000001	0.000005	0.000001	0.000003	0.000001	0.000002	0.000005	0.000002	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001		
9S	9E	Glycol Refiller 1	0.0002	0.001	-	-	-	-	-	-	-	-	-	-	-	-	0.000006	0.00003	0.00003	0.00001	0.00004	-	-	-	0.005	0.02	0.000006	0.00002	0.00002	0.00002	0.00002	0.000003	
10S	10E	Glycol Dehydrator No. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02	0.07	0.03	0.13	0.001	0.006	0.01	0.06	0.03	0.13	0.09	0.39	0.39	0.39	0.39	0.39	
11S	11E	Flare	0.0001	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	0.01	0.002	0.002	0.0004	0.0001	0.00002	0.001	0.0002	0.05	0.02	0.000004	0.00001	0.00001	0.00001	0.00001	0.00001	
12S	12E	Compressor Blowdowns	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06	0.01	0.01	0.01	0.001	0.001	0.01	0.0005	0.28	0.02	0.07	0.02	0.07	0.02	0.07	0.02	
13S	13E	Engine Starter Vents	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	0.004	0.01	0.000	0.001	0.00003	0.00	0.0002	0.30	0.03	0.39	0.39	0.39	0.39	0.39		
14S	14E	Pigging Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.002	0.0004	0.0004	0.0001	0.00003	0.000015	0.0002	0.00004	0.01	0.002	-	0.01	0.002	-	0.01	0.002	
15S	15E	Unpaved Road Dust Emissions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Totals:			0.59	2.58	0.37	1.61	0.23	0.99	0.51	0.18	0.53	0.22	0.44	0.01	0.22	0.10	0.38	0.48	0.05	0.23	0.35	0.60	0.05	0.23	0.35	0.60	0.05	0.23	0.35	0.60	0.05	0.23	0.35

CALCULATION OF COMPRESSOR ENGINE POTENTIAL TO EMIT
 RULE 13 AIR PERMIT APPLICATION
 MARCELLUS FIELD STATION NO. 1
 BLUE RACER MIDSTREAM, LLC

Emission Unit ID	Emission Point ID	Description	Type	Engine Ratings			Fuel Gas		Annual Operating Hours (hr/yr)	Emission Factors ^a	Pollutant	Units	Potential to Emit (PTE)	
				Rated Horsepower (hp)	Fuel Consumption (Btu/hp-hr)	Lower Heating Value (Btu/sec)							Hourly ^a (lb/hr)	Annual ^b (T/yr)
1S	1E	Compressor Engine 1	Caterpillar 3606 4 Stroke Lean Burn ADEM IV controller Oxidation Catalyst	1,950	7,508	1,076	8,760				CO	g/hp-hr	5.80	25.42
											NO _x	g/hp-hr	2.15	9.41
											PM/PM ₁₀ /PM _{2.5}	lb/MMBtu	0.15	0.64
											SO ₂	ppm S	0.01	0.04
											VOC	g/hp-hr	3.02	13.24
											Formaldehyde	g/hp-hr	0.20	0.86
											Acetaldehyde	lb/MMBtu	0.12	0.54
											Acrolein	lb/MMBtu	0.08	0.33
											Methanol	lb/MMBtu	0.04	0.16
											Benzene	lb/MMBtu	0.01	0.03
											n-Hexane	lb/MMBtu	0.02	0.07
											Toluene	lb/MMBtu	0.01	0.03
											Ethylbenzene	lb/MMBtu	0.001	0.003
											Xylene	lb/MMBtu	0.003	0.01
											Other HAP	lb/MMBtu	0.02	0.08
2S	2E	Compressor Engine 2	Caterpillar 3606 4 Stroke Lean Burn ADEM IV controller Oxidation Catalyst	1,950	7,508	1,076	8,760				CO	g/hp-hr	5.80	25.42
											NO _x	g/hp-hr	2.15	9.41
											PM/PM ₁₀ /PM _{2.5}	lb/MMBtu	0.15	0.64
											SO ₂	ppm S	0.01	0.04
											VOC	g/hp-hr	3.02	13.24
											Formaldehyde	g/hp-hr	0.20	0.86
											Acetaldehyde	lb/MMBtu	0.12	0.54
											Acrolein	lb/MMBtu	0.08	0.33
											Methanol	lb/MMBtu	0.04	0.16
											Benzene	lb/MMBtu	0.01	0.03
											n-Hexane	lb/MMBtu	0.02	0.07
											Toluene	lb/MMBtu	0.01	0.03
											Ethylbenzene	lb/MMBtu	0.001	0.003
											Xylene	lb/MMBtu	0.003	0.01
											Other HAP	lb/MMBtu	0.02	0.08
3S	3E	Compressor Engine 3	Caterpillar 3606 4 Stroke Lean Burn ADEM IV controller Oxidation Catalyst	1,950	7,508	1,076	8,760				CO	g/hp-hr	5.80	25.42
											NO _x	g/hp-hr	2.15	9.41
											PM/PM ₁₀ /PM _{2.5}	lb/MMBtu	0.15	0.64
											SO ₂	ppm S	0.01	0.04
											VOC	g/hp-hr	3.02	13.24
											Formaldehyde	g/hp-hr	0.20	0.86
											Acetaldehyde	lb/MMBtu	0.12	0.54
											Acrolein	lb/MMBtu	0.08	0.33
											Methanol	lb/MMBtu	0.04	0.16
											Benzene	lb/MMBtu	0.01	0.03
											n-Hexane	lb/MMBtu	0.02	0.07
											Toluene	lb/MMBtu	0.01	0.03
											Ethylbenzene	lb/MMBtu	0.001	0.003
											Xylene	lb/MMBtu	0.003	0.01
											Other HAP	lb/MMBtu	0.02	0.08

CALCULATION OF COMPRESSOR ENGINE POTENTIAL TO EMIT
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC

Emission Unit ID	Emission Point ID	Description	Type	Engine Ratings		Fuel Gas		Annual Operating Hours (hr/yr)	Pollutant	Emission Factors ^a Units	Potential to Emit (PTE)	
				Rated Horsepower (hp)	Fuel Consumption (Btu/hp-hr)	Lower Heating Value (Btu/scf)	Hours (hr/yr)				Hourly ^a (lb/hr)	Annual ^b (T/yr)

^a The Emission Factors for CO, NO_x, VOC, and formaldehyde are from vendor specification sheets with catalyst control credits applied, where applicable. An example calculation for hourly CO emissions for Emission Unit ID 1S follows:

$$\text{CO (lb/hr)} = (\text{Rated Horsepower, hp}) \times (\text{Emission Factor, g/hp-hr}) \times (1 \text{ lb}/453.59 \text{ g})$$

$$\text{CO (lb/hr)} = (1,950 \text{ hp}) \times (1.35 \text{ g/hp-hr}) \times (1 \text{ lb}/453.59 \text{ g})$$

$$= \boxed{5.80} \text{ lb/hr CO}$$

The PM₁₀/PM_{2.5} and HAP Emission Factors are from AP-42 Table 3.2-2 for Four-Stroke Lean Burn Engines (dated 7/00). An example calculation for hourly PM₁₀/PM_{2.5} emissions for Emission Unit ID 1S follows:

$$\text{PM}/\text{PM}_{10}/\text{PM}_{2.5} \text{ (lb/hr)} = (\text{Fuel Consumption, Btu/hp-hr}) \times (\text{Rated Horsepower, hp}) \times (1 \text{ MMBtu}/10^6 \text{ Btu}) \times (\text{Emission Factor, lb/MMBtu})$$

$$\text{PM}/\text{PM}_{10}/\text{PM}_{2.5} \text{ (lb/hr)} = (7,508 \text{ Btu/hp-hr}) \times (1,950 \text{ hp}) \times (1 \text{ MMBtu}/10^6 \text{ Btu}) \times (0.009871 \text{ lb/MMBtu})$$

$$= \boxed{0.15} \text{ lb/hr PM}$$

A material balance approach was used to estimate the SO₂ emission rates using the maximum sulfur concentration in the natural gas. An example calculation for hourly SO₂ emissions for Emission Unit ID 1S follows:

$$\text{SO}_2 \text{ (lb/hr)} = (\text{Fuel Consumption, Btu/hp-hr}) \times (\text{Rated Horsepower, hp}) \times (\text{Fuel Heating Value, scf gas/fuel Btu}) \times (\text{Sulfur Content, scf S}/10^6 \text{ scf gas}) \times (1 \text{ lb-mol}/379 \text{ scf}) \times (32.06 \text{ lb S}/\text{lb-mol}) \times (64.06 \text{ lb SO}_2/32.06 \text{ lb S})$$

$$\text{SO}_2 \text{ (lb/hr)} = (7,508 \text{ Btu/hp-hr}) \times (1,950 \text{ hp}) \times (1 \text{ scf gas}/1076 \text{ Btu}) \times (4 \text{ scf S}/10^6 \text{ scf gas}) \times (1 \text{ lb-mol}/379 \text{ scf}) \times (32.06 \text{ lb S}/\text{lb-mol}) \times (64.06 \text{ lb SO}_2/32.06 \text{ lb S})$$

$$= \boxed{0.01} \text{ lb/hr SO}_2$$

^b An example calculation for annual CO emissions for Emission Unit ID 1S follows:

$$\text{CO (T/yr)} = (\text{Hourly PTE, lb/hr}) \times (\text{Annual Operating Hours, hr/yr}) \times (1 \text{ T}/2,000 \text{ lb})$$

$$\text{CO (T/yr)} = (5.80 \text{ lb/hr}) \times (8,760 \text{ hr/yr}) \times (1 \text{ T}/2,000 \text{ lb})$$

$$= \boxed{25.42} \text{ T/yr CO}$$

Williams, Jerry

From: Williams, Jerry
Sent: Wednesday, September 21, 2016 2:09 PM
To: Daniel Wentworth (Daniel@caimanenergy.com); Sean Wilson; 'Jill Thornberry'
Cc: McKeone, Beverly D
Subject: WV DAQ NSR Permit Application Complete for Blue Racer Midstream, LLC - Marcellus Field Station No. 1

**RE: Application Status: Complete
Blue Racer Midstream, LLC - Marcellus Field Station No. 1
Permit Application R13-3336
Plant ID No. 103-00118**

Mr. Wentworth,

Your application for a construction permit for a natural gas compressor station was received by this Division on August 17, 2016 and assigned to the writer for review. Upon review of said application, it was determined that the application was incomplete and additional information was requested. The requested information has been received, therefore, the statutory review period commenced on September 21, 2016.

In the case of this application, the agency believes it will take approximately 90 days to make a final permit determination.

This determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit determination.

Should you have any questions, please contact Jerry Williams at (304) 926-0499 ext. 1223 or reply to this email.

Jerry Williams, P.E.
Engineer
WVDEP – Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
(304) 926-0499 ext. 1223
jerry.williams@wv.gov



Please consider the environment before printing this email.

NON-CONFIDENTIAL

Williams, Jerry

From: Jill Thornberry <JThornberry@blueracermidstream.com>
Sent: Tuesday, September 20, 2016 1:30 PM
To: Williams, Jerry
Cc: Sean Wilson; McKeone, Beverly D; Daniel Wentworth
Subject: RE: WV DAQ Permit Application Incomplete for Blue Racer Midstream LLC - Marcellus Field Station No. 1
Attachments: MFS1 Flare design Data Sheet.pdf; MFS1 Revision Pages 9.19.2016.pdf

Mr. Williams,

Blue Racer is pleased to provide responses to the items outlined in your email dated 9/6/2016 regarding the MFS#1 permit application. For ease of readability, I have incorporated the responses directly into your original email message. Please contact me with any further questions regarding this permit application.

Thank you,
Jill Thornberry

Jill Thornberry
Sr. Environmental Specialist

Blue Racer Midstream, LLC
553 Wheeling Avenue
Cambridge, OH 43725
740.421.9255 x119 – office
740.255.4800 – cell
jthornberry@blueracermidstream.com



From: Sean Wilson
Sent: Tuesday, September 06, 2016 3:27 PM
To: Jill Thornberry

Begin forwarded message:

From: "Williams, Jerry" <Jerry.Williams@wv.gov>
To: "Daniel Wentworth" <Daniel@caimanenergy.com>, "Sean Wilson" <SWilson@caimanenergy.com>
Cc: "McKeone, Beverly D" <Beverly.D.Mckeone@wv.gov>
Subject: WV DAQ Permit Application Incomplete for Blue Racer Midstream LLC - Marcellus Field Station No. 1

RE: Application Status: Incomplete
Blue Racer Midstream LLC - Marcellus Field Station No. 1
Permit Application No. R13-3336
Plant ID No. 103-00118

Mr. Wentworth,

ID # 103-00118
Reg R13-3336
Company BLUE RACER
Facility MARCELLUS F1 Initials JW

NON-CONFIDENTIAL

Your application for a construction permit for a natural gas compressor station was received by this Division on August 17, 2016 and assigned to the writer for review. Upon initial review of said application, it has been determined that the application as submitted is incomplete based on the following items:

1. Class I legal advertisement contained the wrong telephone extension. Extension 1250 must be used. Furthermore, it must be stated that a "construction" permit was applied for. Please submit the affidavit of publication upon receipt.

Blue Racer response: On September 9, 2016 Apex TITAN, Inc., on behalf of Blue Racer, submitted the Class I legal advertisement original affidavit to you. Please note that the Class I legal advertisement contained the correct telephone number extension of 1250 and stated that a construction permit being applied for.

2. Please provide the maximum design heat input (MMBTU/hr) for flare 11S.

Blue Racer response: Please see attached flare specification sheet that includes the maximum design heat input for the flare (11S).

3. 40CFR60 Subpart JJJJ has a regulatory allowable of 0.7 g/hp-hr for VOC emissions for engines 1S-3S. The oxidation catalyst spec sheet shows an allowable of 0.75 g/hp-hr. Please provide an explanation on how these engines will meet the rule.

Blue Racer response: VOC emission calculations from the compressor engines (1S-3S) are based on a 0.7 g/hp-hr VOC emission factor, and 0.05 g/hp-hr formaldehyde emission factor. Since the VOC emission factor specified in NSPS JJJJ does not include formaldehyde, BRM elected to add the formaldehyde emissions to the VOC emission factor to account for total VOC emissions from each compressor engine. The vendor guarantee of 0.75 g/hp-hr VOC breaks down into 0.7 g/hp-hr VOC and 0.05 g/hp-hr formaldehyde.

4. Utilization of a 10% safety factor on engines 1S-3S is not allowed. The PTE of these engines are the values represented by the manufacturer.

Blue Racer response: Please find attached updated engine emission calculations, safety factor has been removed.

5. Utilization of a 17% safety factor on the glycol dehydration reboiler 9S is not allowed.

Blue Racer response: Please find attached updated reboiler calculations. In addition, the heater fuel consumption rate has been increased to 3.0 MMBTU/hr to match equipment allocated for this facility.

6. Please use EPA Tanks 4.09 to calculate the working and breathing losses for tank 5S. Please provide ProMax information for flashing losses for this tank as well.

Blue Racer response: Please find attached updated storage tank calculations, based on the attached TANKS 4.09d output file. Flashing losses were determined using Promax software, and a copy of the output report can be found on page N-42 of the application. Promax stream 16 represents the flash losses from the storage tank.

7. Please explain the differences in molecular weights for truck loading 7S and 8S.

Blue Racer response: Truck loading 7S represents truck loadout from the produced water tank, and the liquid properties were taken from the storage tank calculations. The vapor molecular weight used in truck loading 7S is based on AP-42 data for RVP10 gasoline, to be conservative. Truck loading 8S represents truck loadout from the pressurized bullet tank, and the vapor molecular weight was taken as the molecular weight of the flash stream from the pressurized bullet tank (labelled as “VRU downtime to flare” on page N-43 of the application).

8. Please provide the particulate matter and HAP emissions for flare 11S.

Blue Racer response: Please find attached revised flare calculations with PM and HAP emissions included.

9. Please provide the bullet tank 6S operating pressure and size. Please provide a 40CFR60 Subpart Kb regulatory analysis.

Blue Racer response: Bullet tank capacity (6S) is 30,000 gal and the operating pressure will be greater than 30 psi, as required by NSPS Kb. Regulatory Analysis for NSPS Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, is not applicable to the produced water storage tank (Unit ID 5S) since its storage capacity is less than 1,589.874 m³ and it stores liquids prior to custody transfer. This subpart is not applicable to the pressurized bullet tank (Unit ID 6S) since the tank is designed to operate with a pressure in excess of 204.9 kPa and without any emissions to the atmosphere.

10. Please provide the loading throughput for the pressurized truck loading 8S.

Blue Racer response: Pressurized truck loading emissions were calculated assuming a maximum annual throughput of 448,021 gallons.

Please update and resubmit any forms that are affected as a result of the aforementioned incomplete items.

Please address the above deficiencies in writing within fifteen (15) days of the receipt of this email. Application review will not commence until the application has been deemed to be technically complete. Failure to respond to this request in a timely manner may result in the denial of the application.

Should you have any questions, please contact Jerry Williams at (304) 926-0499 ext. 1223 or reply to this email.

Jerry Williams, P.E.
Engineer
WVDEP – Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
(304) 926-0499 ext. 1223

jerry.williams@wv.gov



Please consider the environment before printing this email.

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Design Data Sheet

Process Design Conditions

Waste Flare Stream	Flow Rate (MMSCFD)	Flow Rate (Lb/hr)	Molecular Weight	Lower Heating Value (Btu/SCF)	Inlet Pressure (psig)	Temp. (F)
LP (BTEX / Slop Tank)	0.187	412	20.1	292	<0.1	amb
HP (Compressor SD)	4.26	9187	19.66	1083	5-10	amb
Environmental Design	5 MMSCFD of 1083 Btu/scf flare gas. 225 MMBtu/hr heat release.					

Utilities

Pilot Gas (per pilot)	78 scfh at 5 psig. Clean, dry natural gas.
Plant Air	No Plant Air Required
Electricity	120V / 1 Phase / 10 Amps is required to operate pilot ignition system
Blowers	Electric: 480V / 3 Phase / 60Hz Blower Size: 7.5 HP

Mechanical

Design Wind Speed	120 mph ASCE 7-10
Site Conditions	Temp: 0 to 120°F Elevation: 14.0 Psia
Corrosion Allowance	1/16" (standard)
Electrical Area	Non-classified area
Control Panel Type	Nema 4X (Corrosion resistance fiberglass reinforced plastic (FRP))
Blower Motor	TEFC, Premium duty suitable for VFD

Emission & Performance Guarantees

Destruction	98% or greater hydrocarbon destruction efficiency will be achieved
Stability	Flare will be stable over the entire operating range
Smokeless Rate	100% Smokeless
Max Radiation	Less than 500 Btu/hr/SF at normal & 1500 Btu/hr at max flow rates
Tip Velocity	Meets EPA regulations over full operating range

Flare Construction

Component	Dimension	Material	Conn. @ Joints	Connection Type	Connection Elevation
Flare Stack	30' H x 16" base	A-36/A53B/ A106B/A500	Full Pen. Buttweld	----	----
LP Gas Riser	4" with 16" Knockout drum in base	A53B	Full Pen Buttweld	6" 150# RF	6'
HP Gas Riser	8". Line slopes back to client knockout.	A53B	Full Pen Buttweld	8" 150# RF	7'
Flare Tip Ø	12"	304SS	Full Pen.	integral	---
Pilots	Hero HES	Stainless Steel	NPT / SW	---	flare tip
Pilot Tubing Ø	3/8"	SS tubing or SS flexhose	Swagelok	NPT at regulator	2.5'
Pilot Conduit	---	rigid conduit or flexible SO cord	NPT	NPT	stack base

Attachment I

Emission Units Table

(includes all emission units and air pollution control devices
that will be part of this permit application review, regardless of permitting status)

Emission Unit ID ¹	Emission Point ID ²	Emission Unit Description	Year Installed/Modified	Design Capacity	Type ³ and Date of Change	Control Device ⁴
1S	1E	Compressor Engine 1	2016	1950HP	New	1C
2S	2E	Compressor Engine 2	2016	1950HP	New	2C
3S	3E	Compressor Engine 3	2016	1950HP	New	3C
4S	4E	Site Fugitives	2016	N/A	New	N/A
5S	5E	Produced Water Tank	2016	210bbl	New	N/A
6S	6E	Pressurized Bullet Tank	2016	N/A	New	N/A
7S	7E	Truck Loading	2016	N/A	New	N/A
8S	8E	Pressurized Truck Loading	2016	N/A	New	N/A
9S	9E	Glycol Reboiler 1	2016	3.0 mmBTU/hr	New	N/A
10S	11E	Glycol Dehydrator No. 1	2016	91MMSCFD	New	11S
11S	11E	Flare	2016	N/A	New	N/A
12S	12E	Compressor Blowdowns	2016	N/A	New	N/A
13S	13E	Engine Starter Vents	2016	N/A	New	N/A
14S	11E	Pigging Operations	2016	N/A	New	11S
15S	15E	Unpaved Road Dust Emissions	2016	N/A	New	N/A

¹ For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S,... or other appropriate designation.

² For Emission Points use the following numbering system: 1E, 2E, 3E, ... or other appropriate designation.

³ New, modification, removal

⁴ For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data															
Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type ¹	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS ³ (Specify VOCs & HAPs)	Maximum Potential Uncontrolled Emissions ⁴		Maximum Potential Controlled Emissions ⁵		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used ⁶	Emission Concentration ⁷ (ppmv or mg/m ⁴)
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
1E	Vertical	1S	Compressor Engine 1	1C	Oxidation Catalyst	C	N/A	NO _x CO VOC PM SO ₂ CO _{2e} (1) HAPs	4.30	18.83	4.30	18.83	Gas	EE	N/A
									5.80	25.42	5.80	25.42	Gas		
									3.22	14.10	3.22	14.10	Gas		
									0.15	0.64	0.15	0.64	Gas		
									0.01	0.04	0.01	0.04	Gas		
									--	7,508.93	--	7,508.93	Gas		
									(2)	(2)	(2)	(2)	Gas		
2E	Vertical	2S	Compressor Engine 2	2C	Oxidation Catalyst	C	N/A	NO _x CO VOC PM SO ₂ CO _{2e} (1) HAPs	4.30	18.83	4.30	18.83	Gas	EE	N/A
									5.80	25.42	5.80	25.42	Gas		
									3.22	14.10	3.22	14.10	Gas		
									0.15	0.64	0.15	0.64	Gas		
									0.01	0.04	0.01	0.04	Gas		
									--	7,508.93	--	7,508.93	Gas		
									(2)	(2)	(2)	(2)	Gas		
3E	Vertical	3S	Compressor Engine 3	3C	Oxidation Catalyst	C	N/A	NO _x CO VOC PM SO ₂ CO _{2e} (1) HAPs	4.30	18.83	4.30	18.83	Gas	EE	N/A
									5.80	25.42	5.80	25.42	Gas		
									3.22	14.10	3.22	14.10	Gas		
									0.15	0.64	0.15	0.64	Gas		
									0.01	0.04	0.01	0.04	Gas		
									--	7,508.93	--	7,508.93	Gas		
									(2)	(2)	(2)	(2)	Gas		

4E	N/A	4S	Site Fugitives	N/A	N/A	C	N/A	VOC CO ₂ CH ₄ CO _{2e} (l) HAPs	1.29 -- -- -- (2)	5.67 0.26 18.07 451.89 (2)	1.29 -- -- -- (2)	5.67 0.26 18.07 451.89 (2)	Gas Gas Gas Gas Gas	EE	N/A
5E	Vertical	5S	Produced Water Tank	N/A	N/A	C	N/A	VOC CO ₂ CH ₄ CO _{2e} (l) HAPs	2.58 -- -- -- (2)	0.59 0.15 4.47 111.90 (2)	2.58 -- -- -- (2)	0.59 0.15 4.47 111.90 (2)	Gas Gas Gas Gas Gas	EE	N/A
6E	Vertical	6S	Pressurized Bullet Tank	N/A	N/A	C	N/A	VOC CO ₂ CH ₄ CO _{2e} (l) HAPs	0.0004 -- -- -- (2)	0.00003 0.0004 0.0003 0.01 (2)	0.0004 -- -- -- (2)	0.00003 0.0004 0.0003 0.01 (2)	Gas Gas Gas Gas Gas	EE	N/A
7E	Vertical	7S	Truck Loading	N/A	N/A	<1 hour	N/A	VOC CO ₂ CH ₄ CO _{2e} (l) HAPs	86.08 -- -- -- (2)	0.27 0.07 2.03 50.81 (2)	86.08 -- -- -- (2)	0.27 0.07 2.03 50.81 (2)	Gas Gas Gas Gas Gas	EE	N/A
8E	Vertical	8S	Pressurized Truck Loading	N/A	N/A	<1 hour	N/A	VOC CO ₂ CH ₄ CO _{2e} (l) HAPs	0.01 -- -- -- (2)	0.0003 0.00006 0.002 0.05 (2)	0.01 -- -- -- (2)	0.0003 0.00006 0.002 0.05 (2)	Gas Gas Gas Gas Gas	EE	N/A
9E	Vertical	9S	Glycol Reboiler 1	N/A	N/A	C	N/A	NO _x CO VOC PM SO ₂ CO _{2e} (l) HAPs	0.29 0.25 0.02 0.02 0.002 -- (2)	1.29 1.08 0.07 0.10 0.009 1,538.65 (2)	0.29 0.25 0.02 0.02 0.002 -- (2)	1.29 1.08 0.07 0.10 0.009 1,538.65 (2)	Gas Gas Gas Gas Gas Gas Gas	EE	N/A
10E	Vertical	10S	Glycol Dehydrator No. 1	11S	N/A	C	N/A	VOC CO ₂ CH ₄ CO _{2e} (l) HAPs	1.08 -- -- -- (2)	4.74 6.25 5.63 147.07 (2)	1.08 -- -- -- (2)	4.74 6.25 5.63 147.07 (2)	Gas Gas Gas Gas Gas	EE	N/A

11E	Vertical	11S	Flare	N/A	N/A	C	N/A	NO _x CO VOC PM SO ₂ CO _{2e} (1) HAPs	4.29 8.57 4.64 0.19 0.01 -- (2)	3.41 6.81 0.87 0.14 0.05 2,894.55 (2)	4.29 8.57 4.64 0.19 0.01 -- (2)	3.41 6.81 0.87 0.14 0.05 2,894.55 (2)	Gas Gas Gas Gas Gas Gas Gas	EE	N/A
12E	Vertical	12S	Compressor Blowdowns	N/A	N/A	<1 hour	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	25.93 -- -- -- (2)	2.02 0.09 7.08 177.08 (2)	25.93 -- -- -- (2)	2.02 0.09 7.08 177.08 (2)	Gas Gas Gas Gas Gas	EE	N/A
13E	Vertical	13S	Engine Starter Vents	N/A	N/A	<1 hour	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	28.00 -- -- -- (2)	1.40 0.07 4.90 122.59 (2)	28.00 -- -- -- (2)	1.40 0.07 4.90 122.59 (2)	Gas Gas Gas Gas Gas	EE	N/A
11E	N/A	14S	Pigging Operations	N/A	N/A	Varies	N/A	VOC CO ₂ CH ₄ CO _{2e} (1) HAPs	0.93 -- -- -- (2)	0.17 0.008 0.60 14.88 (2)	0.93 -- -- -- (2)	0.17 0.008 0.60 14.88 (2)	Gas Gas Gas Gas Gas	EE	N/A
15E	N/A	15S	Unpaved Road Dust Emissions	N/A	N/A	Varies	N/A	PM PM ₁₀ PM _{2.5}	1.65 0.49 0.05	0.77 0.23 0.02	1.65 0.49 0.05	0.77 0.23 0.02	Gas Gas Gas	EE	N/A

Notes:

- (1) Hourly emissions could not be quantified. CO_{2e} emissions include CO₂, CH₄, and N₂O, taking into account the Global Warming Potential of each.
- (2) Individual HAPs are provided in Attachment N.

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

¹ Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

² Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (i.e., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

- 3 List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. **DO NOT LIST** H₂, H₂O, N₂, O₂, and Noble Gases.
- 4 Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- 5 Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- 6 Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).
- 7 Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m³) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO₂, use units of ppmv (See 45CSR10).

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data

Table 2: Release Parameter Data								
Emission Point ID No. <i>(Must match Emission Units Table)</i>	Inner Diameter (ft.)	Exit Gas		Emission Point Elevation (ft)			UTM Coordinates (km)	
		Temp. (°F)	Volumetric Flow ¹ (acfm) <i>at operating conditions</i>	Velocity (fps)	Ground Level <i>(Height above mean sea level)</i>	Stack Height ² <i>(Release height of emissions above ground level)</i>	Northing	Easting
Facility Coordinates								
1E	1.0	826	12097	N/A	1100 ft	20 ft	4,380.678	524,169
2E	1.0	826	12097	N/A	1100 ft	20 ft	4,380.678	524,169
3E	1.0	826	12097	N/A	1100 ft	20 ft	4,380.678	524,169
4E	N/A	N/A	N/A	N/A	1100 ft	N/A	4,380.678	524,169
5E	N/A	N/A	N/A	N/A	1100 ft	N/A	4,380.678	524,169
6E	N/A	N/A	N/A	N/A	1100 ft	N/A	4,380.678	524,169
7E	N/A	N/A	N/A	N/A	1100 ft	N/A	4,380.678	524,169
8E	N/A	N/A	N/A	N/A	1100 ft	N/A	4,380.678	524,169
9E	1.0	N/A	N/A	N/A	1100 ft	20 ft	4,380.678	524,169
11E	1.0	N/A	N/A	N/A	1100 ft	20 ft	4,380.678	524,169
12E	1.0	N/A	N/A	N/A	1100 ft	20 ft	4,380.678	524,169
13E	1.0	N/A	N/A	N/A	1100 ft	20 ft	4,380.678	524,169
15E	N/A	N/A	N/A	N/A	1100 ft	N/A	4,380.678	524,169

¹ Give at operating conditions. Include inerts. ² Release height of emissions above ground level.

Control Device ID No. (must match List Form): N/A

1. Manufacturer:	2. Model No. Serial No.
3. Number of units: 1	4. Use Provide heat for dehydration unit.
5. Rated Boiler Horsepower: hp	6. Boiler Serial No.:
7. Date constructed: TBD	8. Date of last modification and explain: N/A
9. Maximum design heat input per unit: <div style="text-align: right;">3.0 ×10⁶ BTU/hr</div>	10. Peak heat input per unit: <div style="text-align: right;">3.0 ×10⁶ BTU/hr</div>
11. Steam produced at maximum design output: <div style="text-align: right;">N/A LB/hr</div> <div style="text-align: right;">psig</div>	12. Projected Operating Schedule: <div style="text-align: right;">Hours/Day 24</div> <div style="text-align: right;">Days/Week 7</div> <div style="text-align: right;">Weeks/Year 52</div>
13. Type of firing equipment to be used: <input type="checkbox"/> Pulverized coal <input type="checkbox"/> Spreader stoker <input type="checkbox"/> Oil burners <input checked="" type="checkbox"/> Natural Gas Burner <input type="checkbox"/> Others, specify	14. Proposed type of burners and orientation: <input type="checkbox"/> Vertical <input type="checkbox"/> Front Wall <input type="checkbox"/> Opposed <input type="checkbox"/> Tangential <input type="checkbox"/> Others, specify
15. Type of draft: <input checked="" type="checkbox"/> Forced <input type="checkbox"/> Induced	16. Percent of ash retained in furnace: N/A %
17. Will flyash be reinjected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	18. Percent of carbon in flyash: N/A %

19. Inside diameter or dimensions: 1.0 ft.	20. Gas exit temperature: °F
21. Height: 20 ft.	22. Stack serves: <input checked="" type="checkbox"/> This equipment only <input type="checkbox"/> Other equipment also (submit type and rating of all other equipment exhausted through this stack or vent)
23. Gas flow rate: ft ³ /min	
24. Estimated percent of moisture: %	

Fuel Requirements

25.	Type	Fuel Oil No.	Natural Gas	Gas (other, specify)	Coal, Type:	Other:
	Quantity (at Design Output)	gph@60°F	2941 ft ³ /hr	ft ³ /hr	TPH	
	Annually	×10 ³ gal	25.8 ×10 ⁶ ft ³ /yr	×10 ⁶ ft ³ /hr	tons	
	Sulfur	Maximum: wt. % Average: wt. %	0.25 gr/100 ft ³	gr/100 ft ³	Maximum: wt. %	
	Ash (%)		N/A		Maximum	
	BTU Content	BTU/Gal. Lbs/Gal. @60°F	1,189 BTU/ft ³	BTU/ft ³	BTU/lb	
	Source		Plant Residue			
	Supplier		N/A			
	Halogens (Yes/No)		No			
	List and Identify Metals		N/A			

26. Gas burner mode of control: <input type="checkbox"/> Manual <input type="checkbox"/> Automatic hi-low <input type="checkbox"/> Automatic full modulation <input type="checkbox"/> Automatic on-off	27. Gas burner manufacture: TBD <hr/> 28. Oil burner manufacture: N/A
--	--

29. If fuel oil is used, how is it atomized?	<input type="checkbox"/> Oil Pressure <input type="checkbox"/> Steam Pressure <input type="checkbox"/> Compressed Air <input type="checkbox"/> Rotary Cup <input type="checkbox"/> Other, specify
--	---

30. Fuel oil preheated: <input type="checkbox"/> Yes <input type="checkbox"/> No	31. If yes, indicate temperature: _____ °F
--	--

32. Specify the calculated theoretical air requirements for combustion of the fuel or mixture of fuels described above actual cubic feet (ACF) per unit of fuel: scfm @ 70 °F, 14.7 PSIA, N/A % moisture	
--	--

33. Emission rate at rated capacity: See Attachment N lb/hr

34. Percent excess air actually required for combustion of the fuel described: 15 %

Coal Characteristics

35. Seams:

36. Proximate analysis (dry basis): % of Fixed Carbon: % of Sulfur: % of Moisture: % of Volatile Matter: % of Ash:

Emissions Stream

37. What quantities of pollutants will be emitted from the boiler before controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	0.25			
Hydrocarbons				
NO _x	0.29			
Pb				
PM ₁₀	0.02			
SO ₂	0.002			
VOCs	0.02			
Other (specify)				

38. What quantities of pollutants will be emitted from the boiler after controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	0.25			
Hydrocarbons				
NO _x	0.29			
Pb				
PM ₁₀	0.02			
SO ₂	0.002			
VOCs	0.02			
Other (specify)				

39. How will waste material from the process and control equipment be disposed of?
N/A

40. Have you completed an *Air Pollution Control Device Sheet(s)* for the control(s) used on this Emission Unit. N/A

41. Have you included the **air pollution rates** on the Emissions Points Data Summary Sheet? Yes

42. Proposed Monitoring, Recordkeeping, Reporting, and Testing

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING PLAN: Please list (1) describe the process parameters and how they were chosen (2) the ranges and how they were established for monitoring to demonstrate compliance with the operation of this process equipment operation or air pollution control device.

TESTING PLAN: Please describe any proposed emissions testing for this process equipment or air pollution control device.

RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.

REPORTING: Please describe the proposed frequency of reporting of the recordkeeping.

43. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
TBD

TABLE N-1
SUMMARY OF PROPOSED ALLOWABLE EMISSION RATES
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC

Emission Unit ID		Emission Point ID	Description	VOC			NO _x			CO			PM			PM ₁₀			SO ₂			CO ₂ e		
				Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	
1S	1E		Compressor Engine 1	3.22	14.10	4.30	18.83	5.80	25.42	0.15	0.64	0.15	0.64	0.15	0.64	0.01	0.04	--	7,508.93	--	7,508.93			
2S	2E		Compressor Engine 2	3.22	14.10	4.30	18.83	5.80	25.42	0.15	0.64	0.15	0.64	0.15	0.64	0.01	0.04	--	7,508.93	--	7,508.93			
3S	3E		Compressor Engine 3	3.22	14.10	4.30	18.83	5.80	25.42	0.15	0.64	0.15	0.64	0.15	0.64	0.01	0.04	--	7,508.93	--	7,508.93			
4E			Site Fugitives	1.29	5.67	--	--	--	--	--	--	--	--	--	--	--	--	--	451.89	--	451.89			
5S	5E		Produced Water Tank	2.58	0.59	--	--	--	--	--	--	--	--	--	--	--	--	--	111.90	--	111.90			
6E			Pressurized Bullet Tank	0.0004	0.0003	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	--	0.01			
7S	7E		Truck Loading	86.08	0.27	--	--	--	--	--	--	--	--	--	--	--	--	--	50.81	--	50.81			
8S	8E		Pressurized Truck Loading	0.01	0.0003	--	--	--	--	--	--	--	--	--	--	--	--	--	0.05	--	0.05			
9S	9E		Glycol Reboiler 1	0.02	0.07	0.29	1.29	0.25	1.08	0.02	0.10	0.02	0.10	0.02	0.10	0.009	0.009	--	1,538.65	--	1,538.65			
10E	11E		Glycol Dehydrator No. 1	1.08	4.74	--	--	--	--	--	--	--	--	--	--	--	--	--	147.07	--	147.07			
11S	11E		Flare	4.64	0.87	4.29	3.41	8.57	6.81	0.19	0.14	0.19	0.14	0.19	0.14	0.01	0.04	--	2,894.55	--	2,894.55			
12S	12E		Compressor Blowdowns	25.93	2.02	--	--	--	--	--	--	--	--	--	--	--	--	--	177.08	--	177.08			
13S	13E		Engine Starter Vents	28.00	1.40	--	--	--	--	--	--	--	--	--	--	--	--	--	122.59	--	122.59			
11E	11E		Pigging Operations	0.93	0.17	--	--	--	--	--	--	--	--	--	--	--	--	--	14.88	--	14.88			
15S	15E		Unpaved Road Dust Emissions	--	--	--	--	--	--	1.65	0.77	0.49	0.23	0.05	0.02	--	--	--	--	--	--			
Totals:				160.23	58.10	17.49	61.19	26.23	84.15	2.31	2.93	1.14	2.39	0.70	2.18	0.04	0.17	--	28,036.28	--	28,036.28			

TABLE N-2
SUMMARY OF POTENTIAL HAP EMISSION RATES
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC

Emissions Unit ID	Emission Point ID	Description	CH ₄ O			Acetaldehyde			Acrolein			Benzene			Toluene			Ethylbenzene			Xylene			N-Heptane			Other HAP's			Total HAP's		
			Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)
			0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
1S	1E	Compressor Engine 1	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
2S	2E	Compressor Engine 2	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
3S	3E	Compressor Engine 3	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
4S	4E	Site Facilities	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
5S	5E	Produced Water Tank	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
6S	6E	Pressurized Boiler Tank	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
7S	7E	Truck Loading	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
8S	8E	Pressurized Tank Loading	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
9S	9E	Glycol Reboiler 1	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
10S	10E	Glycol Dehydrator No. 1	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
11S	11E	Pane	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
12S	12E	Compressor Blowdowns	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
13S	13E	Engine Starter Vents	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
14S	14E	Pigging Operations	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
15S	15E	Unpaved Road Dust Emissions	0.20	0.86	0.12	0.54	0.08	0.33	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.0006	0.003	0.0006	0.003	0.01	0.02	0.07	0.02	0.08	0.01	0.04	0.02	0.08	0.01	0.04	0.01
Totals:			0.59	2.58	0.37	1.61	0.23	0.99	0.51	0.18	0.53	0.22	0.04	0.01	0.22	0.10	0.98	0.48	0.23	0.05	0.23	0.35	0.06	0.02	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.02

CALCULATION OF COMPRESSOR ENGINE POTENTIAL TO EMIT
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC

Emission Unit ID	Emission Point ID	Description	Type	Engine Ratings		Fuel Gas Lower Heating Value (Btu/scf)	Annual Operating Hours (hr/yr)	Emission Factors ^a	Pollutant	Units	Potential to Emit (PTE)	
				Rated Horsepower (hp)	Fuel Consumption (Btu/hp-hr)						Hourly ^a (lb/hr)	Annual ^b (T/yr)
1S	1E	Compressor Engine 1	Caterpillar 3606 4 Stroke Lean Burn ADEM IV controller Oxidation Catalyst	1,950	7,508	1,076	8,760	1.35	CO	g/hp-hr	5.80	25.42
								1.00	NO _x	g/hp-hr	4.30	18.83
								0.0099871	PM ₁₀ /PM _{2.5}	lb/MMBtu	0.15	0.64
								4	SO ₂	ppm S	0.01	0.04
								0.70	VOC	g/hp-hr	3.02	13.24
								0.05	Formaldehyde	g/hp-hr	0.20	0.86
								0.008360	Acetaldehyde	lb/MMBtu	0.12	0.54
								0.005140	Acrolein	lb/MMBtu	0.08	0.33
								0.002500	Methanol	lb/MMBtu	0.04	0.16
								0.000440	Benzene	lb/MMBtu	0.01	0.03
								0.001110	n-Hexane	lb/MMBtu	0.02	0.07
								0.000408	Toluene	lb/MMBtu	0.01	0.03
								0.000397	Ethylbenzene	lb/MMBtu	0.001	0.003
2S	2E	Compressor Engine 2	Caterpillar 3606 4 Stroke Lean Burn ADEM IV controller Oxidation Catalyst	1,950	7,508	1,076	8,760	0.000184	Xylene	lb/MMBtu	0.003	0.01
								0.001214	Other HAP	lb/MMBtu	0.02	0.08
								1.35	CO	g/hp-hr	5.80	25.42
								1.00	NO _x	g/hp-hr	4.30	18.83
								0.0099871	PM ₁₀ /PM _{2.5}	lb/MMBtu	0.15	0.64
								4	SO ₂	ppm S	0.01	0.04
								0.70	VOC	g/hp-hr	3.02	13.24
								0.05	Formaldehyde	g/hp-hr	0.20	0.86
								0.008360	Acetaldehyde	lb/MMBtu	0.12	0.54
								0.005140	Acrolein	lb/MMBtu	0.08	0.33
								0.002500	Methanol	lb/MMBtu	0.04	0.16
								0.000440	Benzene	lb/MMBtu	0.01	0.03
								0.001110	n-Hexane	lb/MMBtu	0.02	0.07
3S	3E	Compressor Engine 3	Caterpillar 3606 4 Stroke Lean Burn ADEM IV controller Oxidation Catalyst	1,950	7,508	1,076	8,760	0.000408	Toluene	lb/MMBtu	0.01	0.03
								0.000397	Ethylbenzene	lb/MMBtu	0.001	0.003
								0.000184	Xylene	lb/MMBtu	0.003	0.01
								0.001214	Other HAP	lb/MMBtu	0.02	0.08
								1.35	CO	g/hp-hr	5.80	25.42
								1.00	NO _x	g/hp-hr	4.30	18.83
								0.0099871	PM ₁₀ /PM _{2.5}	lb/MMBtu	0.15	0.64
								4	SO ₂	ppm S	0.01	0.04
								0.70	VOC	g/hp-hr	3.02	13.24
								0.05	Formaldehyde	g/hp-hr	0.20	0.86
								0.008360	Acetaldehyde	lb/MMBtu	0.12	0.54
								0.005140	Acrolein	lb/MMBtu	0.08	0.33
								0.002500	Methanol	lb/MMBtu	0.04	0.16

CALCULATION OF COMPRESSOR ENGINE POTENTIAL TO EMIT
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC

Emission Unit ID	Emission Point ID	Description	Type	Engine Ratings			Annual Operating Hours (hr/yr)	Pollutant	Emission Factors ^a Units	Potential to Emit (PTE) Hourly ^a (lb/hr) Annual ^b (T/yr)
				Rated Horsepower (hp)	Fuel Consumption (Btu/hp-hr)	Fuel Gas Lower Heating Value (Btu/scf)				

^a The Emission Factors for CO, NO_x, VOC, and formaldehyde are from vendor specification sheets with catalyst control credits applied, where applicable. An example calculation for hourly CO emissions for Emission Unit ID 1S follows:

$$\text{CO (lb/hr)} = (\text{Rated Horsepower, hp}) * (\text{Emission Factor, g/lb-hp-hr}) * (1 \text{ lb}/453.59 \text{ g})$$

$$\text{CO (lb/hr)} = (1,950 \text{ hp}) * (1.35 \text{ g/lb-hp-hr}) * (1 \text{ lb}/453.59 \text{ g})$$

$$= \boxed{5.80 \text{ lb/hr CO}}$$

The PM/PM₁₀/PM_{2.5}, and HAP Emission Factors are from AP-42 Table 3.2-2 for Four-Stroke Lean Burn Engines (dated 7/00). An example calculation for hourly PM/PM₁₀/PM_{2.5} emissions for Emission Unit ID 1S follows:

$$\text{PM/PM}_{10}/\text{PM}_{2.5} \text{ (lb/hr)} = (\text{Fuel Consumption, Btu/hp-hr}) * (\text{Rated Horsepower, hp}) * (1 \text{ MMBtu}/10^6 \text{ Btu}) * (\text{Emission Factor, lb/MMBtu})$$

$$\text{PM/PM}_{10}/\text{PM}_{2.5} \text{ (lb/hr)} = (7,508 \text{ Btu/hp-hr}) * (1,950 \text{ hp}) * (1 \text{ MMBtu}/10^6 \text{ Btu}) * (0.0099871 \text{ lb/MMBtu})$$

$$= \boxed{0.15 \text{ lb/hr PM}}$$

A material balance approach was used to estimate the SO₂ emission rates using the maximum sulfur concentration in the natural gas. An example calculation for hourly SO₂ emissions for Emission Unit ID 1S follows:

$$\text{SO}_2 \text{ (lb/hr)} = (\text{Fuel Consumption, Btu/hp-hr}) * (\text{Rated Horsepower, hp}) * (\text{Fuel Heating Value, scf gas/fuel Btu}) * (\text{Sulfur Content, scf S}/10^6 \text{ scf gas}) * (1 \text{ lb-mol}/379 \text{ scf}) * (32.06 \text{ lb S/lb-mol}) * (64.06 \text{ lb SO}_2/32.06 \text{ lb S})$$

$$\text{SO}_2 \text{ (lb/hr)} = (7,508 \text{ Btu/hp-hr}) * (1,950 \text{ hp}) * (1 \text{ scf gas}/1076 \text{ Btu}) * (4 \text{ scf S}/10^6 \text{ scf gas}) * (1 \text{ lb-mol}/379 \text{ scf}) * (32.06 \text{ lb S/lb-mol}) * (64.06 \text{ lb SO}_2/32.06 \text{ lb S})$$

$$= \boxed{0.01 \text{ lb/hr SO}_2}$$

^b An example calculation for annual CO emissions for Emission Unit ID 1S follows:

$$\text{CO (T/yr)} = (\text{Hourly PTE, lb/hr}) * (\text{Annual Operating Hours, hr/yr}) * (1 \text{ T}/2,000 \text{ lb})$$

$$\text{CO (T/yr)} = (5.80 \text{ lb/hr}) * (8,760 \text{ hr/yr}) * (1 \text{ T}/2,000 \text{ lb})$$

$$= \boxed{25.42 \text{ T/yr CO}}$$

CALCULATION OF HEATER POTENTIAL TO EMIT

**RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC**

Emission Unit ID	Point ID	Description	Rated Duty (MMBtu/hr)	Fuel Higher Heating Value (Btu/scf)	Annual Operating Hours (hr/yr)	Pollutant	Emission Factor ^a	Unit	Potential to Emit (PTE)	
									Hourly ^b (lb/hr)	Annual ^c (T/yr)
9S	9E	Glycol Reboiler 1	3.00	1,020	8,760	CO	84	lb/MMscf	0.25	1.08
						NO _x	100	lb/MMscf	0.29	1.29
						PM ^d	7.6	lb/MMscf	0.02	0.10
						SO ₂ ^e	4.0	ppm	0.002	0.009
						VOC	5.5	lb/MMscf	0.02	0.07
						CH ₂ O	0.075	lb/MMscf	0.0002	0.001
						Benzene	0.0021	lb/MMscf	0.000006	0.000003
						Toluene	0.0034	lb/MMscf	0.00001	0.00004
						n-Hexane	1.8	lb/MMscf	0.005	0.02
						Other HAP	0.0019	lb/MMscf	0.000006	0.000002

^a Unless otherwise noted, emission factors are from AP-42 Tables 1.4-1, 1.4-2, and 1.4-3 (dated 7/98).

^b An example calculation for hourly PTE CO and SO₂ for Emission Unit ID 9S follows:

$$\text{CO (lb/hr)} = (\text{Rated Duty, MMBtu/hr}) / (\text{Fuel Heating Value, Btu/scf}) * (\text{Emission Factor, lb/MMscf})$$

$$\text{CO (lb/hr)} = (3.00 \text{ MMBtu/hr}) / (1,020 \text{ Btu/scf}) * (84 \text{ lb/MMscf})$$

$$= \boxed{0.25} \text{ lb/hr CO}$$

$$\text{SO}_2 \text{ (lb/hr)} = (\text{Rated Duty, MMBtu/hr}) / (\text{Fuel Heating Value, Btu/scf}) * (\text{Sulfur Content, scf S/MMscf gas}) * (1 \text{ lb-mol}/379 \text{ scf}) * (32.06 \text{ lb S/lb-mol}) * (64.06 \text{ lb SO}_2/32.06 \text{ lb S})$$

$$\text{SO}_2 \text{ (lb/hr)} = (3.00 \text{ MMBtu/hr}) / (1,020 \text{ Btu/scf}) * (4.0 \text{ scf S/MMscf gas}) * (1 \text{ lb-mol}/379 \text{ scf}) * (32.06 \text{ lb S/lb-mol}) * (64.06 \text{ lb SO}_2/32.06 \text{ lb S})$$

$$= \boxed{0.002} \text{ lb/hr SO}_2$$

^c An example calculation for annual PTE CO for Emission Unit ID 9S follows:

$$\text{CO (T/yr)} = (\text{Hourly PTE, lb/hr}) * (\text{Annual Operating Hours, hr/yr}) / (2,000 \text{ lb/T})$$

$$\text{CO (T/yr)} = (0.25 \text{ lb/hr}) * (8,760 \text{ hr/yr}) / (2,000 \text{ lb/T})$$

$$= \boxed{1.08} \text{ T/yr CO}$$

^d All PM is assumed to be less than 2.5 microns in diameter per footnote "c" of AP-42 Table 1.4-2.

^e A material balance approach was used to estimate the SO₂ emission rates using the maximum sulfur concentration in the natural gas.

SUMMARY OF STORAGE TANK POTENTIAL TO EMIT
 RULE 13 AIR PERMIT APPLICATION
 MARCELLUS FIELD STATION NO. 1
 BLUE RACER MIDSTREAM, LLC

Emission Unit ID	Emission Point ID	Tank Description	Working & Breathing Emissions ^a		Flash Emissions ^a		Annual Turnovers (turnovers/yr)	Minimum Turnover Time (hr/turnover)	Control Efficiency (%)	Potential To Emit		
			Working Loss (lb/yr)	Breathing Loss (lb/yr)	Hourly Rate (lb/hr)	Annual Rate (T/yr)				Hourly (lb/hr)	VOC Annual (T/yr)	CO ₂ Annual (T/yr)
5S	5E	Produced Water Tank	602.66	550.05	0.004	0.02	10	24	0%	2.58	0.59	0.15

^a Tank working and breathing emissions calculated using TANKS 4.09d program. Flash emissions from the storage tank are expected to be negligible. Hourly and annual emissions were calculated as shown below.

Example calculation of the hourly emissions for Emission Unit ID 5S follows:

$$\begin{aligned} \text{VOC (lb/hr)} &= ((((\text{Breathing Loss, lb/yr})/(8,760 \text{ hr/yr})) + ((\text{Working Loss, lb/yr})/(\text{Number of turnovers/yr} \times (\text{Number of hrs/turnover}))) + (\text{Hourly Flash Emissions, lb/hr})) \times (1 - \text{control efficiency})) \\ &= (((((550.05 \text{ lb/yr})/(8,760 \text{ hr/yr})) + ((602.66 \text{ lb/yr})/(10 \text{ turnovers/yr} \times (24 \text{ hr/turnover}))) + (0.004 \text{ lb/hr})) \times (1 - 0.00)) \end{aligned}$$

Example calculation of the annual emissions for Emission Unit ID 5S follows:

$$\begin{aligned} \text{VOC (T/yr)} &= ((((\text{Working Loss, lb/yr}) + (\text{Breathing Loss, lb/yr})) / (2000 \text{ ton/yr})) + (\text{Flash Emissions, T/yr})) \times (1 - \text{control efficiency}) \\ \text{VOC (T/yr)} &= (((((602.66 \text{ lb/yr}) + (550.05 \text{ lb/yr})) / (2,000 \text{ lb/ton})) + (0.02 \text{ T/yr})) \times (1 - 0.00)) \end{aligned}$$

See following pages for working and breathing emission calculations.

HAP Emissions from storage tanks speciated based on condensate vapor composition from Promax, as shown:

5S		
Component	Hourly (lb/hr)	Annual (T/yr)
Benzene	0.01	0.002
Toluene	0.01	0.003
Ethylbenzene	0.001	0.0002
Xylene	0.01	0.001
n-Hexane	0.01	0.002

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification
 User Identification: MFS1 PW Tank 1
 City: Reader
 State: West Virginia
 Company: Blue Racer Midstream
 Type of Tank: Vertical Fixed Roof Tank
 Description: 210 bbl produced water storage tank.

Tank Dimensions
 Shell Height (ft): 15.00
 Diameter (ft): 10.00
 Liquid Height (ft): 15.00
 Avg. Liquid Height (ft): 7.50
 Volume (gallons): 8,812.81
 Turnovers: 9.53
 Net Throughput(gal/yr): 84,000.00
 Is Tank Heated (y/n): N

Paint Characteristics
 Shell Color/Shade: White/White
 Shell Condition: Good
 Roof Color/Shade: White/White
 Roof Condition: Good

Roof Characteristics
 Type: Cone
 Height (ft): 0.00
 Slope (ft/ft) (Cone Roof): 0.06

Breather Vent Settings
 Vacuum Settings (psig): -0.03
 Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: Columbus, Ohio (Avg Atmospheric Pressure = 14.33 psia)

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TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

MFS1 PW Tank 1 - Vertical Fixed Roof Tank
Reader, West Virginia

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	41.13	37.64	44.61	51.42	3.5471	3.2965	3.8129	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Feb	42.80	38.92	46.88	51.42	3.6800	3.3863	3.9941	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Mar	48.25	43.46	53.03	51.42	4.1089	3.7234	4.5217	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Apr	53.20	47.50	58.90	51.42	4.5368	4.0449	5.0757	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	May	58.07	51.89	64.14	51.42	4.9943	4.4290	5.5190	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Jun	61.80	55.50	68.10	51.42	5.3691	4.7488	6.0528	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Jul	63.51	57.51	69.51	51.42	5.5481	4.9308	6.2149	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Aug	62.48	56.65	68.30	51.42	5.4396	4.8577	6.0760	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Sep	59.44	53.97	64.90	51.42	5.1293	4.6070	5.6981	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Oct	53.78	48.69	58.83	51.42	4.5877	4.1437	5.0692	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Nov	48.46	44.66	52.26	51.42	4.1249	3.8168	4.4528	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Dec	43.46	40.27	46.64	51.42	3.7230	3.4842	3.9749	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

MFS1 PW Tank 1 - Vertical Fixed Roof Tank
Reader, West Virginia

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	23.2866	25.2145	38.1198	48.4982	61.1405	67.1317	68.7771	65.0134	54.7599	46.8548	29.0214	22.2189
Vapor Space Volume (cu ft):	597.2299	597.2299	597.2299	597.2299	597.2299	597.2299	597.2299	597.2299	597.2299	597.2299	597.2299	597.2299
Vapor Density (lb/cu ft):	0.0436	0.0450	0.0497	0.0544	0.0593	0.0633	0.0652	0.0641	0.0608	0.0550	0.0499	0.0455
Vapor Space Expansion Factor:	0.0702	0.0831	0.1099	0.1436	0.1877	0.1872	0.1843	0.1750	0.1543	0.1284	0.0864	0.0659
Vented Vapor Saturation Factor:	0.4116	0.4027	0.3766	0.3536	0.3319	0.3161	0.3090	0.3133	0.3260	0.3510	0.3756	0.3999
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	597.2299	597.2299	597.2299	597.2299	597.2299	597.2299	597.2299	597.2299	597.2299	597.2299	597.2299	597.2299
Tank Diameter (ft):	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000
Vapor Space Outage (ft):	7.6042	7.6042	7.6042	7.6042	7.6042	7.6042	7.6042	7.6042	7.6042	7.6042	7.6042	7.6042
Tank Shell Height (ft):	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000
Average Liquid Height (ft):	7.5000	7.5000	7.5000	7.5000	7.5000	7.5000	7.5000	7.5000	7.5000	7.5000	7.5000	7.5000
Roof Outage (ft):	0.1042	0.1042	0.1042	0.1042	0.1042	0.1042	0.1042	0.1042	0.1042	0.1042	0.1042	0.1042
Roof Outage (Cone Roof):												
Roof Outage (ft):	0.1042	0.1042	0.1042	0.1042	0.1042	0.1042	0.1042	0.1042	0.1042	0.1042	0.1042	0.1042
Roof Height (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Slope (ft/ft):	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625
Shell Radius (ft):	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000
Vapor Density:												
Vapor Density (lb/cu ft):	0.0436	0.0450	0.0497	0.0544	0.0593	0.0633	0.0652	0.0641	0.0608	0.0550	0.0499	0.0455
Vapor Molecular Weight (lb/lb-mole):	66.0000	66.0000	66.0000	66.0000	66.0000	66.0000	66.0000	66.0000	66.0000	66.0000	66.0000	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.5471	3.6800	4.1069	4.5368	4.9943	5.3691	5.5481	5.4396	5.1293	4.5877	4.1249	3.7230
Daily Avg. Liquid Surface Temp. (deg. R):	500.7984	502.5662	507.9154	512.8693	517.7374	521.4683	523.1763	522.1464	519.1065	513.4279	508.1307	503.1285
Daily Average Ambient Temp. (deg. F):	26.3000	29.6000	40.8500	51.0000	61.2000	68.2000	73.2000	71.4500	65.5000	53.7000	42.8500	31.9000
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	511.0858	511.0858	511.0858	511.0858	511.0858	511.0858	511.0858	511.0858	511.0858	511.0858	511.0858	511.0858
Tank Paint Solar Absorptance (Shell):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Daily Total Solar Insolation Factor (Btu/sqft day):	568.5478	803.6449	1,100.9299	1,461.9802	1,747.2069	1,904.2545	1,865.5476	1,672.0129	1,357.9156	995.5933	606.9657	467.3387
Vapor Space Expansion Factor:												
Vapor Space Expansion Factor:	0.0702	0.0831	0.1099	0.1436	0.1877	0.1872	0.1843	0.1750	0.1543	0.1284	0.0864	0.0659
Daily Vapor Temperature Range (deg. R):	13.9383	15.9213	19.1364	22.7990	24.3007	25.1923	24.0000	23.2948	21.8717	20.2910	15.1965	12.7365
Daily Vapor Pressure Range (psia):	0.5164	0.6078	0.7984	1.0306	1.1869	1.3040	1.2752	1.2182	0.9255	0.6360	0.4907	0.3600
Breather Vent Press. Setting Range (psia):	0.0600	0.0900	0.0900	0.0900	0.0900	0.0900	0.0900	0.0900	0.0900	0.0900	0.0900	0.0900
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.5471	3.6800	4.1069	4.5368	4.9943	5.3691	5.5481	5.4396	5.1293	4.5877	4.1249	3.7230
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	3.2965	3.3863	3.7234	4.0449	4.4290	4.7488	4.8398	4.8577	4.6070	4.1437	3.8168	3.4842
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	3.8129	3.9941	4.5217	5.0757	5.6160	6.0526	6.2149	6.0760	5.6881	5.0692	4.4526	3.9749
Daily Avg. Liquid Surface Temp. (deg R):	500.7984	502.5662	507.9154	512.8693	517.7374	521.4683	523.1763	522.1464	519.1065	513.4279	508.1307	503.1285
Daily Min. Liquid Surface Temp. (deg R):	497.3139	498.5858	503.1313	507.1665	511.6622	515.1702	517.1763	516.3227	513.6386	508.3552	504.3316	499.8424
Daily Max. Liquid Surface Temp. (deg R):	504.2830	506.5465	512.6965	518.5681	523.8125	527.7663	529.1763	527.9701	524.5745	518.5007	511.9286	506.5106
Daily Ambient Temp. Range (deg. R):	15.6000	16.8000	19.3000	22.0000	22.0000	22.4000	21.0000	21.3000	21.4000	21.6000	17.1000	14.5000
Vented Vapor Saturation Factor:												
Vented Vapor Saturation Factor:	0.4116	0.4027	0.3766	0.3536	0.3319	0.3161	0.3090	0.3133	0.3260	0.3510	0.3756	0.3999
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.5471	3.6800	4.1069	4.5368	4.9943	5.3691	5.5481	5.4396	5.1293	4.5877	4.1249	3.7230
Vapor Space Outage (ft):	7.6042	7.6042	7.6042	7.6042	7.6042	7.6042	7.6042	7.6042	7.6042	7.6042	7.6042	7.6042

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Working Losses (lb):	39.0184	40.4804	45.1782	49.5044	54.9368	59.0604	61.0280	59.8357	56.4224	50.4650	45.3740	40.9530
Vapor Molecular Weight (lb/lb-mole):	66.0000	66.0000	66.0000	66.0000	66.0000	66.0000	66.0000	66.0000	66.0000	66.0000	66.0000	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.5471	3.6800	4.1069	4.5368	4.9943	5.3691	5.5481	5.4396	5.1293	4.5877	4.1249	3.7230
Net Throughput (galmo.):	7,000.0000	7,000.0000	7,000.0000	7,000.0000	7,000.0000	7,000.0000	7,000.0000	7,000.0000	7,000.0000	7,000.0000	7,000.0000	7,000.0000
Annual Turnovers:	9,5316	9,5316	9,5316	9,5316	9,5316	9,5316	9,5316	9,5316	9,5316	9,5316	9,5316	9,5316
Turnover Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Maximum Liquid Volume (gal):	8,812.8096	8,812.8096	8,812.8096	8,812.8096	8,812.8096	8,812.8096	8,812.8096	8,812.8096	8,812.8096	8,812.8096	8,812.8096	8,812.8096
Maximum Liquid Height (ft):	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000
Tank Diameter (ft):	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	62.3150	65.8949	83.2960	99.4026	116.0774	128.1921	129.8080	124.8492	111.1823	96.3198	74.3954	63.1719

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TANKS 4.0 Report

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TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

MFS1 PW Tank 1 - Vertical Fixed Roof Tank
Reader, West Virginia

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	602.66	550.05	1,152.70

CALCULATION OF PRESSURIZED TRUCK LOADING POTENTIAL TO EMIT

RULE 13 AIR PERMIT APPLICATION

MARCELLUS FIELD STATION NO. 1

BLUE RACER MIDSTREAM, LLC

Condensate Emissions from Disconnecting Loading Lines from Pressurized Vessels

Line Diameter 4 inches

Line Length 8 feet

Volume in Line 0.698 ft³

Sample Calculations:

Hourly PTE = (Pressure, psia) * (Volume, ft³) * (Molecular Weight, lb/lbmol) * (Number of Disconnects per Hour) * (% VOC) / ((Temperature, deg R) * (Gas Constant, ft³*psia/lb-mol*deg R)) * (1-% Control, %)

Hourly PTE = (29.7 psia) * (0.698 cubic ft) * (28.23 lb/lbmol) * (1.0 disconnects/hr) * (0.10) / ((503.1 deg R) * (10.73 cubic ft*psia/lb-mol*deg R)) * (1-0.00) = 0.01 lb/hr

Annual PTE = (Pressure, psia) * (Volume, ft³) * (Molecular Weight, lb/lbmol) * (Number of Disconnects per Year) * (% VOC) / ((Temperature, deg R) * (Gas Constant, ft³*psia/lb-mol*deg R)) * (1-% Control, %)

Annual PTE = (29.7 psia) * (0.698 cubic ft) * (28.23 lb/lbmol) * (50 disconnects/yr) * (0.10) / ((503.1 deg R) * (10.73 cubic ft*psia/lb-mol*deg R)) * (1-0.00) = 0.00 T/yr

Emission Unit ID	Emission Point ID	Facility Name	Hourly Number of Disconnects (disconnects/hr)	Annual Number of Disconnects (disconnects/yr)	Vapor Pressure (psia)	Molecular Weight (lb/mole)	Temp. (deg R)	Gas Constant (ft ³ *psia/lb-mol*deg R)	Volume (ft ³)	% VOC	% Methane	% Carbon Dioxide	% Control	Hourly PTE VOC (lb/hr)	Annual PTE VOC (T/yr)	Annual PTE Methane (T/yr)	Annual PTE Carbon Dioxide (T/yr)
8S	8E	Pressurized Condensate Loading	1	50	29.7	28.23	503.1	10.73	0.698	10%	71.79%	2.38%	0%	0.01	0.0003	0.002	0.00006

1. VOC, methane, and carbon dioxide percentages taken from Promax stream data for condensate flash composition.

2. VOC Emission Speciation based on condensate flash gas composition calculated from Promax. Emission Speciation is as shown below.

Component	wt%	Hourly (lb/hr)	Annual (T/yr)
Benzene	0.03%	0.000003	0.00000008
Toluene	0.05%	0.000005	0.0000001
Ethylbenzene	0.00%	0.0000003	0.000000008
Xylene	0.02%	0.000002	0.00000005
n-Hexane	0.02%	0.000002	0.00000001

FLARE EMISSIONS SUMMARY
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC

Emission Unit ID	Emission Point ID	Description	Pollutant	Pilot Gas		Waste Gas		Total	
				Hourly (lb/hr)	Potential to Emit ^a Annual (T/yr)	Hourly (lb/hr)	Potential to Emit ^b Annual (T/yr)	Hourly (lb/hr)	Potential to Emit Annual (T/yr)
11S	11E	Flare	CO	0.33	1.43	8.25	5.38	8.57	6.81
			NO _x	0.16	0.72	4.13	2.69	4.29	3.41
			PM	0.01	0.03	0.19	0.11	0.19	0.14
			SO ₂	0.001	0.003	0.02	0.01	0.02	0.01
			VOC	0.01	0.02	4.64	0.85	4.64	0.87

^a The Pilot Gas Potential to Emit emissions are from the Process Flare Pilot Gas Combustion Potential to Emit worksheet.

^b The Waste Gas Potential to Emit CO, NO_x, and SO₂ emissions are from the Process Flare Waste Gas Combustion Potential to Emit worksheet.

PROCESS FLARE PILOT GAS COMBUSTION POTENTIAL TO EMIT
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC

Emission Unit ID	Emission Point ID	Description	Fuel Gas Flow Rate (scf/hr)	Fuel Higher Heating Value (Btu/scf)	Annual Operating Hours (hr/yr)	Pollutant	Emission Factors ^a	Units	Potential to Emit ^b	
									Hourly ^a (lb/hr)	Annual ^b (T/yr)
11S	11E	Flare (Pilot)	1,000	1,189	8,760	CO	0.2755	lb/MMBtu	0.33	1.43
						NO _x	0.1380	lb/MMBtu	0.16	0.72
						PM ^c	7.6	lb/MMscf	0.01	0.03
						SO ₂	4.0	ppm	0.001	0.003
						VOC	5.5	lb/MMscf	0.01	0.02
						CH ₂ O	0.075	lb/MMscf	0.0001	0.0003
						Benzene	0.0021	lb/MMscf	0.000002	0.00001
						Toluene	0.0034	lb/MMscf	0.000003	0.00001
						n-Hexane	1.8	lb/MMscf	0.002	0.01
						Other HAP	0.0019	lb/MMscf	0.000002	0.00001

^a Emission Factors for CO and NO_x are based upon the Draft TNRCC Guidance Document for Flares and Vapor Oxidizers (dated 10/00) for non-assisted high-Btu flares. An example calculation for hourly CO emissions for Emission Unit ID 11S follows:

$$\begin{aligned} \text{CO (lb/hr)} &= (\text{Fuel Flow Rate, scf/hr}) * (\text{Fuel Heating Value, Btu/scf}) * (\text{MM}/10^6) * (\text{Emission Factor, lb/MMBtu}) \\ \text{CO (lb/hr)} &= (1000 \text{ scf/hr}) * (1,189 \text{ Btu/scf}) * (\text{MM}/10^6) * (0.2755 \text{ lb/MMBtu}) \\ &= \boxed{0.33} \text{ lb/hr CO} \end{aligned}$$

SO₂ emission rates are estimated using a mass balance approach and the actual sulfur content of the gas. An example calculation for hourly SO₂ emissions for Emission Unit ID 11S follows:

$$\begin{aligned} \text{SO}_2 \text{ (lb/hr)} &= (\text{Fuel Flow Rate, scf/hr}) * (\text{MMscf}/10^6 \text{ scf}) * (\text{sulfur content, scf S/MMscf gas}) * (1 \text{ lb-mol}/379 \text{ scf}) * (32.06 \text{ lb S/lb-mol}) * (64.06 \text{ lb SO}_2/32.06 \text{ lb S}) \\ \text{SO}_2 \text{ (lb/hr)} &= (1000 \text{ scf/hr}) * (\text{MMscf}/10^6 \text{ scf}) * (4.0 \text{ scf S/MMscf gas}) * (1 \text{ lb-mol}/379 \text{ scf}) * (32.06 \text{ lb S/lb-mol}) * (64.06 \text{ lb SO}_2/32.06 \text{ lb S}) \\ &= \boxed{0.001} \text{ lb/hr SO}_2 \end{aligned}$$

Emission Factors for VOC are based upon AP-42 Table 1.4-2 (dated 7/98). An example calculation for hourly VOC emissions for Emission Unit ID 11S follows:

$$\begin{aligned} \text{VOC (lb/hr)} &= (\text{Fuel Flow Rate, scf/hr}) * (\text{MM}/10^6) * (\text{Emission Factor, lb/MMscf}) \\ \text{VOC (lb/hr)} &= (1000 \text{ scf/hr}) * (\text{MM}/10^6) * (5.5 \text{ lb/MMscf}) \\ &= \boxed{0.01} \text{ lb/hr VOC} \end{aligned}$$

^b An example calculation for annual CO emissions for Emission Unit ID 11S follows:

$$\begin{aligned} \text{CO (T/yr)} &= (\text{Hourly Emissions, lb/hr}) * (\text{Annual Operating Hours, hr/yr}) * (1 \text{ T}/2,000 \text{ lb}) \\ \text{CO (T/yr)} &= (0.33 \text{ lb/hr}) * (8,760 \text{ hr/yr}) * (1 \text{ T}/2,000 \text{ lb}) \\ &= \boxed{1.43} \text{ T/yr CO} \end{aligned}$$

^c The process flares are smokeless per 40 CFR §60.18 requirements; therefore, PM emissions are negligible. However, PM emissions have been included to be conservative.

PROCESS FLARE WASTE GAS COMBUSTION POTENTIAL TO EMIT

RULE 13 AIR PERMIT APPLICATION

MARCELLUS FIELD STATION NO. 1

BLUE RACER MIDSTREAM, LLC

Emission Unit ID	Emission Point ID	Description	WG Flow Rate ^a (scf/hr)	WG Heating Value (Btu/scf)	Flare Feed Rate		Pollutant	Emission Factors ^b	Units	Potential to Emit	
					Hourly (MMBtu/hr)	Annual (MMBtu/yr)				Hourly ^b (lb/hr)	Annual ^c (T/yr)
11S	11E	Flare (Waste Gas Stream)	2,267.52	1,478.84	3.35	29,332.43	CO	0.2755	lb/MMBtu	0.92	4.04
6S							NO _x	0.1380	lb/MMBtu	0.46	2.02
10S							PM ^d	7.6	lb/MMscf	0.02	0.08
							SO ₂	4.0	ppm	0.002	0.007
14S	11E	Flare (Pigging)	22,359	1,188.68	26.58	9,700.92	CO	0.2755	lb/MMBtu	7.32	1.34
							NO _x	0.1380	lb/MMBtu	3.67	0.67
							PM ^d	7.6	lb/MMscf	0.17	0.03
							SO ₂	4.0	ppm	0.02	0.003
							VOC		Material Balance	4.64	0.85
							Benzene		Material Balance	0.01	0.002
							Toluene		Material Balance	0.002	0.0004
							Ethylbenzene		Material Balance	0.0001	0.00002
							Xylene		Material Balance	0.001	0.0002
							n-Hexane		Material Balance	0.05	0.01

^a The WG flow rate, heating value, and feed rates from the condensate tank and dehydration unit were determined in the Calculation of Flare Feed Rates. VOC emissions from waste gas are represented at the emission units that generated them.

^b Emission Factors for CO and NO_x are based upon the Draft TNRCC Guidance Document for Flares and Vapor Oxidizers (dated 10/00) for non-assisted high-Btu flares. An example calculation for hourly CO emissions for Unit ID 11S follows:

$$\begin{aligned} \text{CO (lb/hr)} &= (\text{Flare Feed Rate, MMBtu/hr}) * (\text{Emission Factor, lb/MMBtu}) \\ \text{CO (lb/hr)} &= (3.35 \text{ MMBtu/hr}) * (0.2755 \text{ lb/MMBtu}) \\ &= \boxed{0.92} \text{ lb/hr CO} \end{aligned}$$

SO₂ emission rates are estimated using a mass balance approach and the actual sulfur content of the gas. An example calculation for hourly SO₂ emissions for Emission Unit ID 11S follows:

$$\begin{aligned} \text{SO}_2 \text{ (lb/hr)} &= (\text{Fuel Flow Rate, scf/hr}) * (\text{MMscf/10}^6\text{scf}) * (\text{sulfur content, scf S/MMscf gas}) * (1 \text{ lb-mol/32.06 lb S/lb-mol}) * (64.06 \text{ lb SO}_2/32.06 \text{ lb S}) \\ \text{SO}_2 \text{ (lb/hr)} &= (2,268 \text{ scf/hr}) * (\text{MMscf/10}^6\text{scf}) * (4.0 \text{ scf S/MMscf gas}) * (1 \text{ lb-mol/32.06 lb S/lb-mol}) * (64.06 \text{ lb SO}_2/32.06 \text{ lb S}) \\ &= \boxed{0.002} \text{ lb/hr SO}_2 \end{aligned}$$

^c An example calculation for annual CO emissions for Emission Unit ID 11S follows:

$$\begin{aligned} \text{CO (T/yr)} &= (\text{Flare Feed Rate, MMBtu/yr}) * (\text{Emission Factor, lb/MMBtu}) / (2,000 \text{ lb/T}) \\ \text{CO (T/yr)} &= (29332.43 \text{ MMBtu/yr}) * (0.2755 \text{ lb/MMBtu}) / (2,000 \text{ lb/T}) \\ &= \boxed{4.04} \text{ T/yr CO} \end{aligned}$$

^d The process flare is smokeless per 40 CFR §60.18 requirements; therefore, PM emissions are negligible. However, PM emissions have been included to be conservative.

ATTACHMENT O
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLAZE RACER MIDSTREAM, LLC

[illegible]

ATTACHMENT O
RULE 13 AIR PERMIT APPLICATION
MARCELLUS FIELD STATION NO. 1
BLUE RACER MIDSTREAM, LLC

Entrainment ID	Control ID	Procedures	Applicable (Reference)	Limitations/Standard	Maintaining	Testing	Recordkeeping	Reporting
115	115	1.15.1 1.15.2 1.15.3 1.15.4 1.15.5 1.15.6 1.15.7 1.15.8 1.15.9 1.15.10 1.15.11 1.15.12 1.15.13 1.15.14 1.15.15 1.15.16 1.15.17 1.15.18 1.15.19 1.15.20 1.15.21 1.15.22 1.15.23 1.15.24 1.15.25 1.15.26 1.15.27 1.15.28 1.15.29 1.15.30 1.15.31 1.15.32 1.15.33 1.15.34 1.15.35 1.15.36 1.15.37 1.15.38 1.15.39 1.15.40 1.15.41 1.15.42 1.15.43 1.15.44 1.15.45 1.15.46 1.15.47 1.15.48 1.15.49 1.15.50 1.15.51 1.15.52 1.15.53 1.15.54 1.15.55 1.15.56 1.15.57 1.15.58 1.15.59 1.15.60 1.15.61 1.15.62 1.15.63 1.15.64 1.15.65 1.15.66 1.15.67 1.15.68 1.15.69 1.15.70 1.15.71 1.15.72 1.15.73 1.15.74 1.15.75 1.15.76 1.15.77 1.15.78 1.15.79 1.15.80 1.15.81 1.15.82 1.15.83 1.15.84 1.15.85 1.15.86 1.15.87 1.15.88 1.15.89 1.15.90 1.15.91 1.15.92 1.15.93 1.15.94 1.15.95 1.15.96 1.15.97 1.15.98 1.15.99 1.16 1.17 1.18 1.19 1.20 1.21 1.22 1.23 1.24 1.25 1.26 1.27 1.28 1.29 1.30 1.31 1.32 1.33 1.34 1.35 1.36 1.37 1.38 1.39 1.40 1.41 1.42 1.43 1.44 1.45 1.46 1.47 1.48 1.49 1.50 1.51 1.52 1.53 1.54 1.55 1.56 1.57 1.58 1.59 1.60 1.61 1.62 1.63 1.64 1.65 1.66 1.67 1.68 1.69 1.70 1.71 1.72 1.73 1.74 1.75 1.76 1.77 1.78 1.79 1.80 1.81 1.82 1.83 1.84 1.85 1.86 1.87 1.88 1.89 1.90 1.91 1.92 1.93 1.94 1.95 1.96 1.97 1.98 1.99 2.00 2.01 2.02 2.03 2.04 2.05 2.06 2.07 2.08 2.09 2.10 2.11 2.12 2.13 2.14 2.15 2.16 2.17 2.18 2.19 2.20 2.21 2.22 2.23 2.24 2.25 2.26 2.27 2.28 2.29 2.30 2.31 2.32 2.33 2.34 2.35 2.36 2.37 2.38 2.39 2.40 2.41 2.42 2.43 2.44 2.45 2.46 2.47 2.48 2.49 2.50 2.51 2.52 2.53 2.54 2.55 2.56 2.57 2.58 2.59 2.60 2.61 2.62 2.63 2.64 2.65 2.66 2.67 2.68 2.69 2.70 2.71 2.72 2.73 2.74 2.75 2.76 2.77 2.78 2.79 2.80 2.81 2.82 2.83 2.84 2.85 2.86 2.87 2.88 2.89 2.90 2.91 2.92 2.93 2.94 2.95 2.96 2.97 2.98 2.99 3.00 3.01 3.02 3.03 3.04 3.05 3.06 3.07 3.08 3.09 3.10 3.11 3.12 3.13 3.14 3.15 3.16 3.17 3.18 3.19 3.20 3.21 3.22 3.23 3.24 3.25 3.26 3.27 3.28 3.29 3.30 3.31 3.32 3.33 3.34 3.35 3.36 3.37 3.38 3.39 3.40 3.41 3.42 3.43 3.44 3.45 3.46 3.47 3.48 3.49 3.50 3.51 3.52 3.53 3.54 3.55 3.56 3.57 3.58 3.59 3.60 3.61 3.62 3.63 3.64 3.65 3.66 3.67 3.68 3.69 3.70 3.71 3.72 3.73 3.74 3.75 3.76 3.77 3.78 3.79 3.80 3.81 3.82 3.83 3.84 3.85 3.86 3.87 3.88 3.89 3.90 3.91 3.92 3.93 3.94 3.95 3.96 3.97 3.98 3.99 4.00 4.01 4.02 4.03 4.04 4.05 4.06 4.07 4.08 4.09 4.10 4.11 4.12 4.13 4.14 4.15 4.16 4.17 4.18 4.19 4.20 4.21 4.22 4.23 4.24 4.25 4.26 4.27 4.28 4.29 4.30 4.31 4.32 4.33 4.34 4.35 4.36 4.37 4.38 4.39 4.40 4.41 4.42 4.43 4.44 4.45 4.46 4.47 4.48 4.49 4.50 4.51 4.52 4.53 4.54 4.55 4.56 4.57 4.58 4.59 4.60 4.61 4.62 4.63 4.64 4.65 4.66 4.67 4.68 4.69 4.70 4.71 4.72 4.73 4.74 4.75 4.76 4.77 4.78 4.79 4.80 4.81 4.82 4.83 4.84 4.85 4.86 4.87 4.88 4.89 4.90 4.91 4.92 4.93 4.94 4.95 4.96 4.97 4.98 4.99 5.00 5.01 5.02 5.03 5.04 5.05 5.06 5.07 5.08 5.09 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18 5.19 5.20 5.21 5.22 5.23 5.24 5.25 5.26 5.27 5.28 5.29 5.30 5.31 5.32 5.33 5.34 5.35 5.36 5.37 5.38 5.39 5.40 5.41 5.42 5.43 5.44 5.45 5.46 5.47 5.48 5.49 5.50 5.51 5.52 5.53 5.54 5.55 5.56 5.57 5.58 5.59 5.60 5.61 5.62 5.63 5.64 5.65 5.66 5.67 5.68 5.69 5.70 5.71 5.72 5.73 5.74 5.75 5.76 5.77 5.78 5.79 5.80 5.81 5.82 5.83 5.84 5.85 5.86 5.87 5.88 5.89 5.90 5.91 5.92 5.93 5.94 5.95 5.96 5.97 5.98 5.99 6.00 6.01 6.02 6.03 6.04 6.05 6.06 6.07 6.08 6.09 6.10 6.11 6.12 6.13 6.14 6.15 6.16 6.17 6.18 6.19 6.20 6.21 6.22 6.23 6.24 6.25 6.26 6.27 6.28 6.29 6.30 6.						



September 9, 2016

FedEx Tracking No. 7771 9103 6866

Mr. Jerry Williams
Division of Air Quality
West Virginia Department of Environmental Protection
601 57th Street
Charleston, West Virginia 25304



Subject: Public Notice
Original Affidavit for Class I Legal Advertisement
Rule 13 Air Permit Application
Marcellus Field Station No. 1
Blue Racer Midstream, LLC
Reader, Wetzel County, WV

Dear Mr. Williams:

On behalf of Blue Racer Midstream LLC (BRM), Apex TITAN, Inc. (Apex) is pleased to submit the enclosed original notarized publication affidavit for a Class I legal advertisement and a copy of the newspaper publication, including the publication date and newspaper name, for the above-referenced project. Please note the Class I legal advertisement contained the correct telephone extension of 1250 and stated that a "construction" permit was being applied for.

Should you have any questions or need additional information, please contact Ms. Jill Thornberry of BRM at (740) 225-4800 or at jthornberry@blueracermidstream.com or myself (469) 365-1121 or at odeleon@apexcos.com.

Sincerely,
Apex TITAN, Inc.

Osman De Leon, P.E.
Project Manager

ID # 103-00118
Reg P13-3336
Company BLUE RACER MIDSTREAM
Facility MARCELLUS Initials JW

cc: Ms. Jill Thornberry, Blue Racer Midstream, LLC
Mr. Sean Wilson, Blue Racer Midstream, LLC
Mr. Daniel Wentworth, Blue Racer Midstream, LLC

NON-CONFIDENTIAL

WETZEL CHRONICLE

New Martinsville, WV August 31, 2016

State of West Virginia, County of Wetzel:

Personally appeared before the undersigned, a Notary Public,
Brian Clutter who, being duly sworn,
states that he is the manager of the Wetzel Chronicle, a weekly
newspaper of general circulation, published at New Martinsville,
County of Wetzel, State of West Virginia, and that a copy of the
notice attached hereto was published for...../.....successive
weeks in the Wetzel Chronicle, beginning on the 31 day
of August, 2016 and ending on the 31 day
of August, 2016.

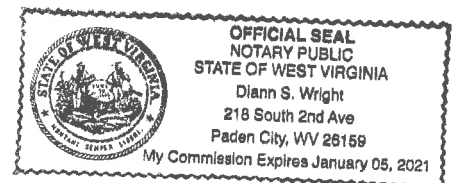
Brian Clutter
Manager, Wetzel Chronicle

Subscribed and sworn to before me, a Notary Public of said
County, on this 31 day of August, 2016.

Diann S. Wright Notary Public

My commission expires on the 5th day of January, 2021.

Printers Fee.....



Legal Notices

AIR QUALITY PERMIT NOTICE Notice of Application

Notice is given that Ascant Resources - Marcellus, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Construction Permit for the Hoyt 402 facility, located near Wileyville, in Wetzel County, West Virginia. The latitude and longitude coordinates are: 39.5976722°N, 80.614333°W.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be:

NOX= 6.86 TPY
CO = 14.64 TPY
VOC = 16.06 TPY
PM10= 3.66 TPY
SO2= <0.01 TPY
HAPs = 0.04 TPY

Startup of operation is planned to begin on or about the 30th day of September, 2016. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAO at (304) 928-0489, extension 1250, during normal business hours.

Dated this 31st day of August, 2016.

By: Ascant Resources - Marcellus, LLC,
Tim Cummings
VP - Operations
PO Box 13678
Oklahoma City, OK 73113
WC-8-31 13057

AIR QUALITY PERMIT NOTICE Notice of Application

Notice is given that Ascant Resources - Marcellus, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Construction Permit for the Hoyt 403 facility, located near Wileyville, in Wetzel County, West Virginia. The latitude and longitude coordinates are: 39.593244°N, 80.6877683°W.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be:

NOX= 5.22 TPY
CO = 7.17 TPY
VOC = 12.92 TPY
PM10= 2.04 TPY
SO2= <0.01 TPY
HAPs = 0.18 TPY

Startup of operation is planned to begin on or about the 31st day of August, 2016. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Legal Notices

Notice of Application for Construction Permit

Notice is given that Blue Racer Midstream, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Rule 13 Air Permit Application for Marcellus Field Station No. 1 located near Reeder, in Wetzel County, West Virginia. The latitude and longitude coordinates are: Latitude: 39.57547 and Longitude: 80.71859.

Blue Racer Midstream, LLC estimates the construction will result in the following potential emissions of Regulated Air Pollutant discharges to the atmosphere of:

Regulated Air Pollutant Emissions (T/yr)

Oxides of Nitrogen (NOx)	91.42
Carbon Monoxide (CO)	62.57
Volatile Organic Compounds (VOC)	2.98
Particulate Matter (PM)	2.44
PM with an aerodynamic diameter of less than or equal to 10 microns (PM10)	2.24
PM with an aerodynamic diameter of less than or equal to 2.5 microns (PM2.5)	0.19
Sulfur Dioxide (SO2)	0.19
Greenhouse Gases (CO2e)	30,236

The addition of emission sources and operations are planned to begin on or about the 30th day of December, 2016. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAO at (304) 928-0489, extension 1250, during normal business hours.

Dated this the (31st) day of (August), (2016)

Richard Morisset
President and COO
5949 Cherry Lane, Suite 1300
Dallas, Texas 75225
WC-8-31 13054

TO: THE CITIZENS OF THE CITY OF NEW MARTINSVILLE

NOTICE

You are hereby duly notified that pursuant to West Virginia Code §§ 12-2-5 as amended, and Article III, Section 22 entitled Closure and Abandonment of Streets, Alleys and Public Ways, of the Code of the City of New Martinsville, West Virginia, the New Martinsville Planning Commission shall consider the application of landowners, the Wetzel County Chamber of Commerce, to close and vacate the following streets or alleyways:

DESCRIPTIONS FOR ABANDONMENT OF ROBERT AVENUE, CLARK AVENUE AND A 16 FOOT ALLEY, RIGHT-OF-WAY

Situate in Mingo County, Tax Map 23, being all of Robert Avenue that lies east of Kappel Street and west of High Leap Street between and bordering Parcel Nos. 34 and 35 to the north Parcel Number 24 to the south.

Situate in Mingo County, Tax Map 23, being all of Clark Avenue that lies east of Kappel Street and west of

Legal Notices

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Experienced and Dependable

Please send resume to:

**3570 Shields Hill Rd.
Cairo, WV 26337**

RN'S NEEDED, WE ARE GROWING AGAIN!!

WV's largest provider of Home Care services needs Full-time RN's to handle case load growth in the Moundsville area. No shift work or weekends required. Applicants must have a current WV nursing license, current drivers' license, and reliable transportation. Offering a benefit package that includes paid mileage, health/life/long-term disability insurance and a liberal Paid Time Off benefit.

Legal Notices

IN THE OFFICE OF THE
CLERK OF THE COUNTY
COMMISSION IN AND
FOR WETZEL COUNTY,
WEST VIRGINIA

NOTICE OF ADMINISTRATION

Notice is hereby given that the following estate(s) have been opened for probate in the Wetzel County Clerk's Office at P.O. Box 156, New Martinsville, WV 26155. Any person seeking to impeach or establish a will must make a complaint in accordance with the provisions of West Virginia Code 41-5-11 through 13. Any interested person, objecting to the qualifications of the personal representative of the venue or jurisdiction of the court, shall file notice of objection with the County Commission within 60 days after the date of the first publication or within 30 days of the service of the notice, whichever is later. If an objection is not filed timely, the objection is forever barred.

Claims against the estate(s) must be filed in accordance with the West Virginia Code 44-2-2 if assigned to a fiduciary commissioner. If no reference to a fiduciary commissioner is listed herein, claims against the estate(s) must be filed in accordance with West Virginia Code 44-1-14A(10).

The date of the first publication of this Notice is August 24, 2016.

Name of Decedent
Sydney A. Bates

Name and Address of Personal Representative
Sheena Ashley Jo Keating
3202 Frona Way
Bloomington, IL 61704

Name & Address of Attorney
Logan Hassig Snyder & Hassig
P.O. Box 189
New Martinsville WV 26155

Name of Decedent
Arlie Leguire

AG Warns Of Scams

CHARLESTON
— West Virginia Attorney General Patrick Morrisey urges students and parents to be cautious when pursuing scholarships.

Rising seniors and current college students applying for scholarships need to be cautious of any scam that exploits those looking for help with the ever increasing costs of tuition and housing.

Scholarship-matching services represent a popular scam and involve websites that guarantee of claim to find qualifying scholarships for a fee. Other websites may require money to access its scholarship resources.

Parents and students should be wary of both as online databases and websites exist for free.

For information and to apply for West Virginia scholarships, such as PROMISE, go to www.ofwv.com.

The Attorney General's Office issues this advice as part of the third annual Off to College Consumer Protection Week. To learn about consumer protection efforts in West Virginia, visit wv.wago.wv.gov/consumerprotection.

DIAGNOSTIC

Williams, Jerry

From: Williams, Jerry
Sent: Tuesday, September 06, 2016 1:49 PM
To: Daniel Wentworth (Daniel@caimanenergy.com); Sean Wilson
Cc: McKeone, Beverly D
Subject: WV DAQ Permit Application Incomplete for Blue Racer Midstream LLC - Marcellus Field Station No. 1

**RE: Application Status: Incomplete
Blue Racer Midstream LLC - Marcellus Field Station No. 1
Permit Application No. R13-3336
Plant ID No. 103-00118**

Mr. Wentworth,

Your application for a construction permit for a natural gas compressor station was received by this Division on August 17, 2016 and assigned to the writer for review. Upon initial review of said application, it has been determined that the application as submitted is incomplete based on the following items:

1. Class I legal advertisement contained the wrong telephone extension. Extension 1250 must be used. Furthermore, it must be stated that a "construction" permit was applied for. Please submit the affidavit of publication upon receipt.
2. Please provide the maximum design heat input (MMBTU/hr) for flare 11S.
3. 40CFR60 Subpart JJJJ has a regulatory allowable of 0.7 g/hp-hr for VOC emissions for engines 1S-3S. The oxidation catalyst spec sheet shows an allowable of 0.75 g/hp-hr. Please provide an explanation on how these engines will meet the rule.
4. Utilization of a 10% safety factor on engines 1S-3S is not allowed. The PTE of these engines are the values represented by the manufacturer.
5. Utilization of a 17% safety factor on the glycol dehydration reboiler 9S is not allowed.
6. Please use EPA Tanks 4.09 to calculate the working and breathing losses for tank 5S. Please provide ProMax information for flashing losses for this tank as well.
7. Please explain the differences in molecular weights for truck loading 7S and 8S.
8. Please provide the particulate matter and HAP emissions for flare 11S.
9. Please provide the bullet tank 6S operating pressure and size. Please provide a 40CFR60 Subpart Kb regulatory analysis.
10. Please provide the loading throughput for the pressurized truck loading 8S.

Please update and resubmit any forms that are affected as a result of the aforementioned incomplete items.


Please address the above deficiencies in writing within fifteen (15) days of the receipt of this email. Application review will not commence until the application has been deemed to be technically complete. Failure to respond to this request in a timely manner may result in the denial of the application.

Should you have any questions, please contact Jerry Williams at (304) 926-0499 ext. 1223 or reply to this email.

NON-CONFIDENTIAL

Jerry Williams, P.E.
Engineer
WVDEP – Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
(304) 926-0499 ext. 1223
jerry.williams@wv.gov



 Please consider the environment before printing this email.

Williams, Jerry

From: Ward, Beth A
Sent: Thursday, August 18, 2016 4:12 PM
To: Williams, Jerry
Subject: BLUE RACER MIDSTREAM LLC PERMIT APPLICATION FEE

This is the receipt for payment received from:

BLUE RACER MIDSTREAM LLC, FIELD STATION 1, CHECK NUMBER 26738, CHECK DATE 08/08/2016, \$500.00
R13-3336 ID# 103-00118

BLUE RACER MIDSTREAM LLC, FIELD STATION 1, CHECK NUMBER 9058, CHECK DATE 07/21/2016, \$4,000.00
R13-3336 ID# 103-00118

OASIS Deposit CR 1700018334

Thank You!

Beth Ward

WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
BTO FISCAL
601 57TH STREET SE
CHARLESTON, WV 25304
(304) 926-0499 EXT 1846
beth.a.ward@wv.gov

NON-CONFIDENTIAL

Adkins, Sandra K

From: Adkins, Sandra K
Sent: Thursday, August 18, 2016 11:24 AM
To: 'daniel@caimanenergy.com'; 'swilson@caimanenergy.com';
'jthornberry@blueracermidstream.com'; 'odeleon@apexcos.com'
Cc: McKeone, Beverly D; Williams, Jerry
Subject: WV DAQ Permit Application Status for Blue Racer Midstream, LLC; Field Station 1

**RE: Application Status
Blue Racer Midstream, LLC
Field Station 1
Facility ID No. 103-00118
Application No. R13-3336**

Mr. Wentworth,

Your application for a construction permit for the Marcellus Field Station No. 1 was received by this Division on August 17, 2016, and was assigned to Jerry Williams. The following item was not included in the initial application submittal:

Original affidavit for Class I legal advertisement not submitted.

Please use telephone extension 1250 in legal ad.. Ad must state application is for a construction permit. Please republish.

This item is necessary for the assigned permit writer to continue the 30-day completeness review.

Within 30 days, you should receive a letter from Jerry stating the status of the permit application and, if complete, given an estimated time frame for the agency's final action on the permit.

Any determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit decision.

Should you have any questions, please contact the assigned engineer, Jerry Williams, at 304-926-0499, extension 1223.

NON-CONFIDENTIAL

103-00118 New ID#

R13-3336 R13#

Jeng
Construction

**45CSR13 Administrative Update, Construction, Modification, Relocation,
Temporary Permit or General Permit Registration Incomplete Application**

A complete application is demonstrated when all of the information required below is properly prepared, completed and attached. The items listed below are required information which must be submitted with a 45CSR13 permit application. Any submittal will be considered incomplete if the required information is not included. The applicant must submit a complete application in order to receive a 45CSR13 permit.

- ☒ Class I legal advertisement not published in a newspaper certified to accept legal advertisements and original affidavit submitted. *X1250 Ad must state Application is for a Construction Permit. Please Republish*
- ☐ Application fee AND/OR additional application fees not included:
- ☐ \$250 Class I General Permit
 - ☐ \$300 Class II Administrative Update
 - ☐ \$1,000 Construction, Modification, Relocation or Temporary Permit
 - ☐ \$500 Class II General Permit
 - ☐ \$1,000 NSPS
 - ☐ \$2,500 NESHAP
 - ☐ \$2,500 45CSR27 Pollutant
 - ☐ \$5,000 Major Modification
 - ☐ \$10,000 Major Construction
- ☐ Original and two (2) copies of the application not submitted.
- ☐ File organization – application pages are not numbered or in correct order, application is not bound in some way, etc.
- ☐ Confidential Business Information is not properly identified.
- ☐ General application forms not completed and signed by a responsible official.
- ☐ Authority of Corporation form not included – required if application is signed by someone other than a responsible official.
- ☐ Applicant is not registered with the West Virginia Secretary of State's Office.
- ☐ Copy of current Business Registration Certificate not included.
- ☐ Process description, including equipment and emission point identification numbers, not submitted.
- ☐ Process flow diagram, including equipment and emission point identification numbers, not submitted.
- ☐ Plot plan, including equipment and emission point identification numbers, not submitted.
- ☐ Applicable technical forms not completed and submitted:
- ☐ Emission Point Data Summary Sheets
 - ☐ Air Pollution Control Device Sheets
 - ☐ Emission Unit Data Sheets
 - ☐ Equipment List Form
- ☐ Emission calculations not included – emission factors, references, source identification numbers, etc.
- ☐ Electronic submittal diskette not included.



August 16, 2016

Mr. William Durham
Director, Division of Air Quality
West Virginia Department of Environmental Protection
601 57th Street
Charleston, West Virginia 25304

Via FedEx Tracking ID 7770 0798 7398

**Subject: Rule 13 Air Permit Application
Marcellus Field Station No. 1
Blue Racer Midstream, LLC
Reader, Wetzel County, WV**

Dear Mr. Durham:

On behalf of Blue Racer Midstream, LLC (BRM), Apex TITAN Inc. (Apex), a Subsidiary of Apex Companies, LLC, is pleased to submit to the West Virginia Department of Environmental Protection (WV DEP) the enclosed Rule 13 Air Permit Application to authorize the installation of equipment (the Project) at the Marcellus Field Station No. 1 (the Station), located near Reader, Wetzel County, West Virginia. The Station is a minor source of air contaminants and will not trigger major source permitting for any criteria pollutants.

Enclosed please find one (1) hard copy and two (2) electronic copies of the Rule 13 Air Permit application.

BRM requests that a copy of the working draft permit for the Station be provided for review and comment prior to issuance of the permit. BRM and Apex truly appreciate the WV DEP's review and approval of the enclosed application. If you have any questions or require additional information, please do not hesitate to contact Ms. Jill Thornberry of BRM at (740) 225-4800 or at jthornberry@blueracermidstream.com or myself at 469-365-1121 or at odeleon@apexcoss.com.

Sincerely,
Apex TITAN, Inc.

Osman De Leon, P.E.
Project Manager

cc: Ms. Jill Thornberry, Blue Racer Midstream, LLC
Mr. Sean Wilson, Blue Racer Midstream, LLC
Mr. Daniel Wentworth, Blue Racer Midstream, LLC